APRIL 1979 Number 416 -- Part I

P-A STACKS
MAY 25 1979
DEPARTMENT OF COMMERCE
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N0416, pt1

Solar-Geophysical Data prompt reports

Data for March 1979 -- February 1979

Explanation of Data Reports Issued as Number 414 (Supplement) February 1979

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noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE / BOULDER, COLORADO

U.S. DEPARTMENT OF COMMERCE
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Solar - Geophysical Data

NO. 416 APRIL 1979

Part I (Prompt Reports)

DATA FOR
MARCH 1979
FEBRUARY 1979

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO

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Solar-Geophysical Data, 414 Part I (or Part II), pages, December 1979 U.S. Department of Commerce, (Boulder, Colorado, U.S.A. 80303).

SOLAR-GEOPHYSICAL DATA

No. 416

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

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---- = no data available.
blank = data not yet received.

MARCH 1979 DATA

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ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

MARCH 1979

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS).

1 MARCH 1979 BOULDER 01/1414Z SOFLARE X1/OPTICAL UNKNOWN 01/1019Z DURATION 59 MINUTES.
TENFLARE 290 FLUX UNITS 01/1015Z DURATION 64 MINUTES.
5 MARCH 1979 BOULDER 05/1700Z SOFLARE C9/2B S20W51 05/1517Z FLARE DURATION 54 MINUTES.
9 MARCH 1979 BOULDER 09/1438Z TENFLARE 904 FLUX UNITS 09/1019Z DURATION 63 MINUTES.
19 MARCH 1979 BOULDER 19/1800Z SOFLARE M6/1B N07E15 19/1654Z DURATION 15 MINUTES.
TENFLARE 300 FLUX UNITS 19/1653Z DURATION 12 MINUTES.
21 MARCH 1979 TOYOKAWA 21/0320Z TENFLARE 100 FLUX UNITS 21/0244Z DURATION 8 MINUTES.
22 MARCH 1979 TOYOKAWA 22/0350Z TENFLARE 100 UNITS 22/0322Z 8 MINUTES 45 PERCENT WEST.
BOULDER 22/1530Z SOFLARE M3/2B N07W28 22/1317Z DURATION 46 MINUTES
AND 120 FLUX UNITS AT 2695MHZ 22/1336Z DURATION 14 MINUTES.
23 MARCH 1979 TOYOKAWA 23/0740Z TENFLARE 210 UNITS 23/0628Z DURATION 23 MINUTES.
BOULDER 23/1430Z TENFLARE 280 FLUX UNITS 23/0644Z DURATION 7 MINUTES.
25 MARCH 1979 BOULDER 25/1840Z SOFLARE X1/1B N09W72 25/1802Z DURATION 20 MINUTES.
TENFLARE 350 FLUX UNITS 25/1802Z DURATION 18 MINUTES.
26 MARCH 1979 BOULDER 26/1400Z SOFLARE X1/2B N05W78 26/1144Z DURATION 40 MINUTES
TENFLARE 520 FLUX UNITS 26/1149Z DURATION 37 MINUTES.
27 MARCH 1979 TOYOKAWA 27/0614Z TENFLARE 120 UNITS 27/0600Z DURATION 10 MINUTES
BOULDER 27/1405Z SOFLARE X1 N09W90 27/0541Z DURATION 44 MINUTES.
31 MARCH 1979 BOULDER 31/0003Z SOFLARE M1/2B S25E31 30/2311Z DURATION 20 MINUTES.
1 APRIL 1979 TOYOKAWA 31/2318Z TENFLARE 250 UNITS 01/0110Z DURATION 22 MINUTES.
BOULDER 01/0017Z SOFLARE M5/2B S24E19 31/2316Z DURATION 26 MINUTES.

SUMMARY OF THE GEOALERT WWB MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
060	01	28	143	167	013	S25W56	0	0	0		01	S25W56	Q	SOLQUIET MAGQUIET
						S26W43	0	0	0			S26W43	Q	STRATWARM 1 MARCH /THURSDAY/ STRAT-
						N36W35	0	0	0			N36W35	Q	WARM EXISTS. WARMING AND ANTI-
						S21E12	0	0	0			S21E12	Q	CYCLONIC CIRCULATION OVER ARCTIC
						S32W48	0	0	0			S32W48	Q	REGION.
						S25E38	1	0	0			S25E38	Q	
						S18W23	1	0	0			S18W23	E	
						N08E60	4	0	0			N08E60	E	
						S22E65	5	0	0			S22E65	Q	
						S33W15	0	0	0			S33W15	Q	
061	02	01	202	172	09	S25W69	0	0	0	PRESTO BOULDER 01/	02	S25W69	Q	SOLQUIET MAGQUIET
						S26W54	0	0	0	1414Z SOFLARE X1/		S26W54	Q	STRATWARM 2 MARCH /FRIDAY/ CURRENT
						N36W47	0	0	0	OPTICAL UNKNOWN		N36W47	Q	STRATWARM EPISODE PEAKED FEB 27.
						S20W03	0	0	0	01/1019Z DURATION		S20W03	Q	ANTICYCLONE AND WARMING POLAR REGION
						S32W61	0	0	0	59 MINUTES. TEN-		S32W61	Q	DIMINISHING.
						S24E26	1	0	0	FLARE 290 FLUX		S24E26	A	
						S18W36	0	0	0	UNITS 01/1015Z DUR-		S18W36	Q	
						N09E44	0	0	0	ATION 64 MINUTES.		N09E44	Q	
						S21E53	6	0	1			S21E53	A	
						S33W33	2	0	0			S33W33	Q	
						N13E75	0	0	0			N13E75	E	
						N24W13	1	0	0			N24W13	Q	
						N35E22	0	0	0			N35E22	Q	
062	03	02	224	174	014	S25W84	0	0	0		03	S25W84	Q	SOLALERT MAGNIL
						S26W70	0	0	0			S26W70	Q	
						N36W60	0	0	0			N36W60	Q	
						S21W16	1	0	0			S21W16	E	
						S32W75	0	0	0			S32W75	Q	
						S25E14	3	1	0			S25E14	E	
						S19W51	2	0	0			S19W51	E	
						N09E30	1	0	0			N09E30	E	
						S21E40	2	0	0			S21E40	E	
						S34W46	1	0	0			S34W46	E	
						N13E64	0	0	0			N13E64	Q	
						N23W28	0	0	0			N23W28	Q	
						N35E11	0	0	0			N35E11	Q	
						N18E65	0	0	0			N18E65	Q	
						S15E75	2	0	0			S15E75	E	
063	04	03	241	176	010	S26W83	0	0	0		04	S26W83	Q	SOLALERT 04/XX
						N36W74	0	0	0			N36W74	Q	MAGALERT MINOR 04/XX
						S20W28	4	0	0			S20W28	Q	
						S32W86	0	0	0			S32W86	Q	
						S25E01	2	1	0			S25E01	A	
						S19W64	3	0	0			S19W64	Q	
						N09E16	0	0	0			N09E16	Q	
						S21E26	1	0	0			S21E26	DA	
						S34W59	0	0	0			S34W59	Q	
						N13E48	0	0	0			N13E48	Q	
						N22W42	0	0	0			N22W42	Q	
						N35W03	0	0	0			N35W03	Q	
						N18E56	1	0	0			N18E56	DA	
						S16E64	4	0	0			S16E64	Q	
						N12E62	0	0	0			N13E62	Q	
064	05	04	261	184	015	S18W41	10	0	0		05	S18W41	A	SOLALERT MINOR MAGNIL
						S24W14	0	0	0			S24W14	Q	
						S19W77	3	0	0			S19W77	E	
						S21E12	0	0	0			S21E12	Q	
						S33W72	0	0	0			S33W72	Q	
						N12E35	0	0	0			N12E35	Q	
						N36W16	1	0	0			N36W16	Q	
						N17E38	0	0	0			N17E38	Q	
						S17E49	1	0	0			S17E49	Q	
						N12E48	1	0	0			N12E48	Q	
						S14W28	0	0	0			S14W28	Q	
						S18W15	0	0	0			S18W15	Q	
						N16E15	0	0	0			S16E15	Q	
						N17E45	1	0	0			N17E45	Q	
						S16W20	0	0	0			S16W20	Q	
065	06	05	264	186	011	S19W54	4	0	0	PRESTO BOULDER 05/	06	S19W54	A	SOLALERT 06 MAGQUIET
						S24W28	0	0	0	1700Z SOFLARE C9/		S24W28	E	
						S21W00	0	0	0	2B S20W51 05/1517Z		S21W00	Q	
						N13E22	1	0	0	DURATION 54 MINUTES		N13E22	CA	
						N35W30	7	0	0			N35W30	E	
						N17E25	0	0	0			N17E25	Q	
						S17E35	1	0	0			S17E35	Q	
						N12E34	1	0	0			N12E34	CA	
						S14W41	0	0	0			S14W41	Q	
						N16E01	0	0	0			N16E01	Q	
						N17E36	1	1	0			N17E36	DA	
						S13E71	0	0	0			S13E71	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

MARCH 1979

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions				Outstanding events	Forecasts			Alert Situations
						Location Lat-Long	No. of Flares Total	M	X		Date	Location Lat-Long	Desc*	
066	07	06	182	187	025	S19W65	6	0	0		07	S19W65	A	SOLALERT MINOR 07 MAGQUIET
						S25W41	0	0	0			S25W41	Q	
						S21W13	2	0	0			S21W13	E	
						N13E08	2	0	0			N13E08	Q	
						N35W42	1	0	0			N35W42	Q	
						N17E10	0	0	0			N17E10	Q	
						S16E22	4	0	0			S16E22	E	
						N12E21	3	0	0			N12E21	Q	
						N16E22	0	0	0			N16E22	Q	
						S12E29	0	0	0			S12E59	Q	
						S26E75	0	0	0			S26E75	Q	
067	08	07	184	190	005	S18W80	3	0	0		08	S18W80	Q	SOLNIL MAGQUIET
						S28W55	1	0	0			S28W55	Q	
						S22W29	1	0	0			S22W29	Q	
						N12W07	1	0	0			N12W07	Q	
						N36W54	0	0	0			N36W54	Q	
						N17E04	0	0	0			N17E04	Q	
						S16E08	2	0	0			S16E08	Q	
						N13E07	2	0	0			N13E07	Q	
						S13E45	0	0	0			S13E45	Q	
						S27E63	0	0	0			S27E63	Q	
						N22W21	2	0	0			N22W21	E	
068	09	08	228	181	006	S19W86	0	0	0		09	S19W86	Q	SOLQUIET MAGQUIET
						S26W71	0	0	0			S26W71	Q	
						S22W38	1	0	0			S22W38	Q	
						N13W20	0	0	0			N13W20	Q	
						N35W69	0	0	0			N35W69	Q	
						N17W12	0	0	0			N17W12	Q	
						S16W03	1	0	0			S16W03	Q	
						N12W13	0	0	0			N12W13	Q	
						S13E34	3	0	0			S13E34	E	
						S26E48	1	0	0			S26E48	Q	
						N21W31	5	0	0			N21W31	DA	
						N19E32	0	0	0			N19E32	Q	
						N26E34	0	0	0			N26E34	Q	
069	10	09	271	184	014	S25W86	0	0	0	PRESTO BOULDER 09/	10	S25W86	Q	SOLQUIET MAGALERT 10/11
						N12W35	0	0	0	1438Z TENFLARE 904		N12W35	Q	
						N36W83	0	0	0	FLUX UNITS 09/1019Z		N36W83	Q	
						N17W30	1	0	0	DURATION 63 MINUTES		N17W30	Q	
						S15W22	0	0	0			S15W22	Q	
						N12W25	0	0	0			N12W25	Q	
						S13E20	2	0	0			S13E20	DA	
						S27E35	0	0	0			S27E35	DA	
						N22W44	0	0	0			N22W44	Q	
						N18E20	0	0	0			N18E20	Q	
						N25E22	3	0	0			N25E22	Q	
						S17W13	0	0	0			S17W13	Q	
						N11E15	0	0	0			N11E15	Q	
						S32E42	0	0	0			S32E42	Q	
						N16E69	3	1	0			N16E69	CA	
070	11	10	266	183	023	N13W48	0	0	0		11	N13W48	Q	SOLQUIET MAGALERT 11/XX
						N17W43	0	0	0			N17W43	Q	
						S13W35	4	0	0			S13W35	CA	
						N12W35	0	0	0			N12W35	Q	
						S13E06	0	0	0			S13E06	CA	
						S26E22	0	0	0			S26E22	Q	
						N23W58	0	0	0			N23W58	Q	
						N25E08	0	0	0			N25E08	E	
						S18W30	0	0	0			S18W30	Q	
						S32E31	0	0	0			S32E31	Q	
						N17E55	1	0	0			N17E55	CA	
						N09E73	0	0	0			N09E73	Q	
						N19E04	0	0	0			N19E04	Q	
						S17E22	0	0	0			S17E22	Q	
						S21E52	1	0	0			S21E52	E	
						N20E89	3	0	0			N20E89	E	
071	12	11	270	195	013	N16W55	0	0	0		12	N16W55	Q	SOLALERT 12/XX MAGNIL
						S13W48	1	0	0			S13W48	E	
						N12W48	0	0	0			N12W48	Q	
						S14W08	1	0	0			S14W08	DA	
						S26E10	0	0	0			S26E10	Q	
						N22W68	0	0	0			N22W68	Q	
						N24W05	0	0	0			N24W05	Q	
						S18W42	4	0	0			S18W42	E	
						N11W11	0	0	0			N11W11	Q	
						N17E42	2	0	0			N17E42	E	
						N09E58	0	0	0			N09E58	Q	
						S21E39	0	0	0			S21E39	Q	
						N18E63	2	1	0			N18E63	DA	
						N17E57	0	0	0			N17E57	Q	
						N22E62	0	0	0			N22E62	E	

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						Location	No. of Flares				Date	Location	Desc*	
						Lat-Long	Total	M	X			Lat-Long		
072	13	12	290	191	006	N16W69	1	0	0		13	N16W69	Q	SOLNIL MAGQUIET
						S13W61	0	0	0			S13W61	Q	
						N12W60	0	0	0			N12W60	Q	
						S14W22	3	0	0			S14W22	Q	
						S25W04	0	0	0			S25W04	Q	
						N25W18	0	0	0			N25W18	Q	
						S18W56	0	0	0			S18W56	Q	
						N10W24	3	0	0			N10W24	Q	
						N17E28	0	0	0			N17E28	Q	
						N09E45	1	0	0			N09E45	Q	
						S21E26	0	0	0			S21E26	Q	
						N17E55	1	0	0			N17E55	Q	
						N17E44	0	0	0			N17E44	Q	
						N22E49	1	0	0			N22E49	Q	
						N28E49	0	0	0			N28E49	Q	
						N06E59	0	0	0			N06E59	Q	
						N20E65	1	0	0			N20E65	Q	
						N10E73	0	0	0			N10E73	Q	
						N18E68	0	0	0			N18E68	Q	
073	14	13	290	189	006	N17W83	0	0	0		14	N17W83	Q	SOLQUIET MAGQUIET
						S12W77	1	0	0			S12W77	Q	
						N11W75	0	0	0			N11W75	Q	
						S14W35	2	0	0			S14W35	Q	
						S25W16	0	0	0			S25W16	Q	
						N25W31	0	0	0			N25W31	Q	
						N10W35	2	0	0			N10W35	Q	
						N17E15	1	0	0			N17E15	Q	
						N09E31	1	0	0			N09E31	Q	
						N16E43	0	0	0			N16E43	Q	
						N19E32	4	0	0			N19E32	Q	
						N21E35	0	0	0			N21E35	Q	
						N28E35	0	0	0			N28E35	Q	
						N05E46	0	0	0			N05E46	Q	
						N20E54	0	0	0			N20E54	Q	
						N09E57	0	0	0			N09E57	Q	
						N15E54	0	0	0			N15E54	Q	
						S26E06	0	0	0			S26E06	Q	
						S11E77	1	0	0			S11E77	Q	
074	15	14	257	189	005	S16W41	0	0	0			S16W41	Q	SOLQUIET MAGQUIET
						N23W43	0	0	0			N23W43	Q	
						N10W47	0	0	0			N10W47	Q	
						S32W19	0	0	0			S32W19	Q	
						N17E01	0	0	0			N17E01	Q	
						N09E19	1	0	0			N09E19	Q	
						N15E30	0	0	0			N15E30	Q	
						N17E15	0	0	0			N17E15	Q	
						N28E19	0	0	0			N28E19	Q	
						N06E32	0	0	0			N06E32	Q	
						N20E40	0	0	0			N20E40	Q	
						N09E42	0	0	0			N09E42	Q	
						N16E42	0	0	0			N16E42	Q	
						S25W07	2	0	0			S25W07	Q	
						S11E63	0	0	0			S11E63	Q	
						N15E61	0	0	0			N15E61	Q	
						S15E65	0	0	0			S15E65	Q	
						N06E77	0	0	0			N06E77	Q	
075	16	15	314	183	005	N26W58	0	0	0		16	N26W58	Q	SOLQUIET MAGQUIET
						N11W62	0	0	0			N11W62	Q	
						N18W14	4	1	0			N18W14	DA	
						N11E03	0	0	0			N11E03	Q	
						N15E08	0	0	0			N15E08	Q	
						N17E10	1	0	0			N17E10	Q	
						N28E05	0	0	0			N28E05	Q	
						N06E17	0	0	0			N06E17	Q	
						N20E25	0	0	0			N20E25	Q	
						N16E25	1	0	0			N16E25	Q	
						S25W20	0	0	0			S25W20	E	
						S11E53	1	0	0			S11E53	E	
						N15E46	0	0	0			N15E46	Q	
						S16E51	0	0	0			S16E51	Q	
						N06E63	0	0	0			N06E63	Q	
						N33W00	0	0	0			N33W00	Q	
						N41E15	0	0	0			N41E15	Q	
						S26W54	0	0	0			S26W54	Q	
						S13E76	1	0	0			S13E76	Q	

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						Location Lat-Long	No. of Flares Total	M	X		Date	Location Lat-Long	Desc*	
076	17	16	293	188	010	N17W25	3	0	0		17	N17W25	Q	SOLQUIET MAGQUIET
						N09W11	0	0	0			N09W11	Q	
						N16E05	2	0	0			N16E05	Q	
						N16W11	1	0	0			N16W11	Q	
						N23W00	0	0	0			N23W00	Q	
						N06E05	0	0	0			N06E05	Q	
						N20E14	4	1	0			N20E14	E	
						N16E16	2	0	0			N16E16	Q	
						S25W33	0	0	0			S25W33	Q	
						S13E40	1	0	0			S13E40	Q	
						N14E36	0	0	0			N14E36	Q	
						S16E37	0	0	0			S16E37	Q	
						N06E52	0	0	0			N06E52	Q	
						N32W11	0	0	0			N32W11	Q	
						N41E05	0	0	0			N41E05	Q	
						S25W68	0	0	0			S25W68	Q	
						S14E62	1	0	0			S14E62	Q	
						N25E67	0	0	0			N25E67	Q	
						S31E80	0	0	0			S31E80	Q	
077	18	17	290	177	019	N09W21	0	0	0		18	N09W21	Q	SOLQUIET MAGQUIET
						N16W09	0	0	0			N16W09	Q	
						N15W23	0	0	0			N15W23	Q	
						N23W12	0	0	0			N23W12	Q	
						N06W09	0	0	0			N06W09	Q	
						N20E01	0	0	0			N20E01	Q	
						N17E05	0	0	0			N17E05	Q	
						S26W47	0	0	0			S26W47	CE	
						S13E28	0	0	0			S13E28	Q	
						S16E23	0	0	0			S16E23	Q	
						N07E36	3	0	0			N07E36	DE	
						N30W17	0	0	0			N30W17	Q	
						N39W08	1	0	0			N39W08	DE	
						S15E48	2	0	0			S15E48	DE	
						N26E53	0	0	0			N26E53	Q	
						S31E67	0	0	0			S31E67	Q	
						S28W34	0	0	0			S28W34	Q	
						N09E48	0	0	0			N09E48	Q	
078	19	18	273	196	008	N11W31	2	0	0		19	N11W31	Q	SOLQUIET MAGQUIET
						N16W29	0	0	0			N16W29	Q	
						N28W35	0	0	0			N28W35	Q	
						N07W22	2	0	0			N07W22	Q	
						N19W12	0	0	0			N19W12	DA	
						N18W12	3	0	0			N18W12	Q	
						S25W62	0	0	0			S25W62	DA	
						S12E15	0	0	0			S12E15	E	
						S16E10	2	0	0			S16E10	Q	
						N07E26	2	1	0			N07E26	CA	
						N40W20	0	0	0			N40W20	E	
						S15E36	0	0	0			S15E36	E	
						N20E40	0	0	0			N20E40	Q	
						S29E54	0	0	0			S29E54	Q	
						S28W49	0	0	0			S28W49	Q	
						S30E81	0	0	0			S30E81	Q	
079	20	19	251	192	010	N12W43	0	0	0	PRESTO BOULDER 19/	20	N12W43	Q	SOLQUIET MAGQUIET
						N16W42	0	0	0	1800Z SOFLARE M6/1B		N16W42	Q	
						N19W23	0	0	0	N07E15 19/1654Z DUR-		N19W23	Q	
						N17W25	0	0	0	ATION 15 MINUTES.		N17W25	Q	
						S25W74	0	0	0	TENFLARE 300 FLUX		S25W74	Q	
						S12E01	1	0	0	UNITS 19/1653Z DUR-		S12E01	Q	
						S16E01	1	0	0	ATION 12 MINUTES.		S16E01	Q	
						N07E12	2	1	0			N07E12	E	
						N40W32	0	0	0			N40W32	E	
						S13E23	0	0	0			S13E23	Q	
						N25E26	0	0	0			N25E26	Q	
						S29E42	0	0	0			S29E42	Q	
						S27W62	1	0	0			S27W62	Q	
						S31E71	1	0	0			S31E71	Q	
080	21	20	222	186	007	N28W56	0	0	0		21	N28W56	Q	SOLQUIET MAGQUIET
						N20W35	0	0	0			N20W35	Q	
						N17W37	0	0	0			N17W37	Q	
						S25W86	0	0	0			S25W86	Q	
						S13W13	0	0	0			S13W13	Q	
						N06W01	2	0	0			N06W01	Q	
						N39W44	0	0	0			N39W44	Q	
						S13E10	0	0	0			S13E10	Q	
						N22E12	0	0	0			N22E12	Q	
						S29E28	0	0	0			S29E28	Q	
						S31E59	1	0	0			S31E59	Q	
						N07E14	0	0	0			N07E14	Q	

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						Location Lat-Long	No. of Flares Total	M	X		Date	Location Lat-Long	Desc*	
081	22	21	187	194	002	N28W69	1	0	0	PRESTO TOYOKAWA	22	N28W69	Q	SOLQUIET MAGQUIET
						N20W48	0	0	0	21/0320Z TENFLARE		N20W48	Q	
						S13W26	0	0	0	100 FLUX UNITS		S13W26	Q	
						N07W17	2	0	0	21/0244Z DURATION		N07W17	Q	
						N39W57	0	0	0	8 MINUTES.		N39W57	Q	
						S14E01	0	0	0			S14E01	Q	
						N23W00	0	0	0			N23W00	Q	
						S29E16	0	0	0			S29E16	Q	
						S32E46	0	0	0			S32E46	Q	
						N07W00	0	0	0			N07W00	Q	
						N05E71	0	0	0			N05E71	Q	
						S28E25	0	0	0			S28E25	Q	
082	23	22	256	181	035	N26W80	0	0	0	AN M3/2B PARALLEL	23	N26W80	Q	SOLQUIET MAGALERT 23/25
						N20W61	0	0	0	RIBBON FLARE OCCUR-		N20W61	Q	
						S13W39	0	0	0	RED FROM REGION		S13W39	Q	
						N07W31	9	2	0	1638 (N07W31) AT		N07W31	CA	
						N38W72	0	0	0	22/1319Z ACCOMPAN-		N38W72	Q	
						S15W13	0	0	0	IED BY AN SWF AND		S15W13	Q	
						N24W12	1	0	0	A RADIO BURST ON		N24W12	E	
						S29E03	0	0	0	2695 MHZ OF 120		S29E03	Q	
						S31E34	0	0	0	FLUX UNITS.		S31E34	Q	
						N07W13	0	0	0	AN M3/2N FLARE		N07W13	Q	
						N06E60	3	1	0	OCCURRED FROM		N06E60	DA	
						S28E15	0	0	0	REGION 1638 (N07		S28E15	Q	
						N12W56	0	0	0	W31) AT 22/0326Z		N12W56	Q	
						S24W42	0	0	0	ACCOMPANIED BY RADIO		S24W42	Q	
						N09W22	0	0	0	BURST ON 2695 MHZ		N09W22	Q	
						S36E59	0	0	0	OF 64 FLUX UNITS.		S36E59	Q	
083	24	23	207	189	013	N20W75	0	0	0	REGION 1649 (N07E46)	24	N20W75	Q	SOLALERT 24/25 MAGALERT MINOR 24/XX
						S13W53	3	0	0	PRODUCED AN M2/2B		S13W53	CE	
						N07W47	10	2	0	FLARE AT 23/0647Z		N07W47	A	
						S15W26	0	0	0	WITH STRONG SWF		S15W26	Q	
						N23W24	0	0	0	FROM 9 TO 15 MHZ,		N23W24	Q	
						S28W10	0	0	0	AND A 280 FLUX UNIT		S28W10	Q	
						S30E21	1	0	0	BURST ON 2700 MHZ.		S30E21	Q	
						N07W28	0	1	0			N07W28	Q	
						N07E46	5	0	0			N07E46	A	
						S28W00	0	0	0			S28W00	Q	
						N12W70	0	0	0			N12W70	Q	
						S24W55	0	0	0			S24W55	Q	
						N08W36	0	0	0			N08W36	Q	
						N38W85	1	0	0			N38W85	Q	
						S36E46	0	0	0			S36E46	Q	
084	25	24	220	190	011	S13W66	7	0	0		25	S13W66	E	SOLALERT 25/27 MAGALERT MINOR 24/XX
						N07W61	3	1	0			N07W61	A	
						S14W40	0	0	0			S14W40	Q	
						N23W38	0	0	0			N23W38	Q	
						S27W24	0	0	0			S27W24	Q	
						S31E09	0	0	0			S31E09	CE	
						N07E33	4	0	0			N07E33	A	
						S27W03	0	0	0			S27W03	Q	
						N11W84	0	0	0			N11W84	Q	
						S24W68	0	0	0			S24W68	Q	
						N26W63	0	0	0			N26W63	Q	
						S20E07	0	0	0			S20E07	Q	
						S21W58	2	0	0			S21W58	Q	
						N25E67	1	0	0			N26E67	Q	
085	26	25	164	192	017	S13W79	0	0	0	REGION 1638 (N07W73)	26	S13W79	Q	SOLALERT 26/28 MAGALERT 26/XX
						N07W75	12	2	1	PRODUCED AN X1/1B		N07W75	A	
						S15W52	1	0	0	FLARE AT 25/1808Z		S15W52	Q	
						N23W53	0	0	0	WITH A 10 CM BURST		N23W53	Q	
						S28W36	0	0	0	OF 360 FLUX UNITS		S28W36	Q	
						S30W03	0	0	0	AND POST FLARE LOOPS		S30W03	Q	
						N07E18	2	0	0	NO TYPE II OR IV		N07E18	A	
						S19W05	0	0	0	RADIO BURSTS WERE		S19W05	Q	
						S21E46	2	0	0	DETECTED.		S21E46	E	
						N27E59	0	0	0			N27E59	Q	
086	27	26	166	198	022	N07W86	10	5	1	REGION 1638 (N07W86)	27	N07W86	A	SOLALERT 27/28 MAGALERT 27/XX
						S15W67	0	0	0	PRODUCED 5M FLARES		S15W67	Q	
						S27W47	0	0	0	AND 1X FLARE DURING		S27W47	Q	
						S31W16	3	0	0	PAST 24 HOURS. 520		S31W16	E	
						N06E05	2	0	0	FLUX UNITS WERE		N06E05	E	
						S19W18	0	0	0	OBSERVED AT 1149Z		S19W18	Q	
						N27E46	0	0	0	DURING X1 FLARE ON		N27E46	Q	
						N22E37	0	0	0	2695 MHZ.		N22E37	Q	
						N31E57	0	0	0			N31E57	Q	
						S25E73	0	0	0			S25E73	Q	

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087	28	27	200	187	018	S13W82	0	0	0	AN X-1 EVENT OCCURRED AT 0612Z FROM REGION 1638 WHICH WAS BEHIND THE WEST LIMB.	28	S13W82	Q	SOLALERT MINOR 28
						S28W59	0	0	0			S28W59	Q	MAGALERT MINOR 28/XX
						S31W28	2	0	0			S31W28	E	
						N06W08	0	0	0			N06W08	Q	
						N28E34	0	0	0			N28E34	Q	
						N22E21	0	0	0			N22E21	Q	
						N32E44	4	0	0			N32E44	E	
						S23E67	2	1	0			S23E67	A	
						S21E50	1	0	0			S21E50	Q	
						S20E08	0	0	0			S20E08	Q	
						N11E12	0	0	0			N11E12	Q	
088	29	28	197	191	025	S28W73	0	0	0		29	S28W73	Q	SOLNIL MAGALERT MINOR 29/31
						S30W43	0	0	0			S30W43	Q	
						N06W21	0	0	0			N06W21	Q	
						N28E21	0	0	0			N28E21	Q	
						N22E07	0	0	0			N22E07	Q	
						N32E35	1	0	0			N32E35	Q	
						S23W56	2	0	0			S23W56	E	
						S21E38	0	0	0			S21E38	Q	
						N10W01	0	0	0			N10W01	Q	
						S15E75	0	0	0			S15E75	Q	
						S15E35	0	0	0			S15E35	Q	
						S35E67	0	0	0			S35E67	Q	
089	30	29	211	195	029	S27W87	0	0	0		30	S27W87	Q	SOLALERT 30/31 MAGALERT 30/31
						S30N56	0	0	0			S30N56	Q	
						N07W35	0	0	0			N07W35	Q	
						S22W15	0	0	0			S22W15	Q	
						N27E08	0	0	0			N27E08	Q	
						N22W04	0	0	0			N22W04	Q	
						N32E24	1	0	0			N32E24	Q	
						S24E44	2	0	0			S24E44	A	
						S21E24	1	0	0			S21E24	Q	
						S16E65	0	0	0			S16E65	Q	
						S16E19	0	0	0			S16E19	Q	
						S37E53	0	0	0			S37E53	Q	
						S08E83	0	0	0			S08E83	Q	
090	31	30	197	190	014	S30W67	0	0	0	M1/2B FLARE IN REGION 1661 STARTED AT 30/2311Z LASTED 20 MINUTES.	31	S30W67	Q	SOLALERT 31/01 MAGALERT 31
						N07W48	1	0	0			N07W48	E	
						S22W28	0	0	0			S22W28	Q	
						N26W07	2	0	0			N26W07	E	
						N31E10	3	0	0			N31E10	E	
						S24E31	7	1	0			S24E31	A	
						S16E51	0	0	0			S16E51	Q	
						S16E09	0	0	0			S16E09	Q	
						S08E68	0	0	0			S08E68	Q	
						S23W50	0	0	0			S23W50	Q	
						S27E02	0	0	0			S27E02	Q	
						N26E64	1	0	0			N26E64	E	
091	01	31	173	212	012	N07W61	1	0	0	M5/2B FLARE IN REGION 1661 AT 31/2317Z. 26 MINUTE DURATION.	01	N07W61	Q	SOLALERT 01/02 MAGNIL 01/XX
						N23W33	0	0	0			N23W33	Q	
						N31W02	2	0	0			N31W02	E	
						S23E18	16	1	0			S23E18	DA	
						S16E38	3	0	0			S16E38	E	
						S08E53	0	0	0			S08E53	Q	
						S24W15	0	0	0			S24W15	Q	
						N27E54	0	0	0			N27E54	Q	
						S15W27	0	0	0			S15W27	Q	
						S30W80	0	0	0			S30W80	Q	
						S22W41	0	0	0			S22W41	Q	
						N26W20	3	0	0			N26W20	Q	
						S21W02	0	0	0			S21W02	Q	
						S16W04	1	0	0			S16W04	Q	
						S35E27	4	0	0			S35E27	Q	
						S23W63	1	0	0			S23W63	Q	

* Q=Quiet E=Eruptive A=Active P=Proton C=Caution D=Doubtful O.G.=Other Groups MF=Major Flare

RELATIVE SUNSPOT NUMBERS

ZURICH, R_z

	1978 FINAL									1979 PROVISIONAL		
DAY	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
1	70	85	119	64	42	130	96	109	110	158	116	116
2	68	89	98	61	48	167	112	122	110	158	127	138
3	71	93	78	51	38	159	105	125	117	191	148	141
4	75	92	60	48	62	162	100	129	115	157	123	142
5	94	89	51	54	74	177	73	121	104	146	134	135
6	92	85	31	63	66	177	74	108	122	173	146	144
7	88	75	39	84	58	147	95	112	138	163	144	146
8	105	63	45	105	62	120	103	118	148	172	142	143
9	126	62	36	108	64	109	121	108	152	165	139	146
10	125	60	29	115	67	99	149	120	144	163	137	140
11	120	63	57	127	58	84	158	118	170	157	137	156
12	109	66	62	111	71	72	158	99	188	159	138	170
13	105	74	62	114	93	92	156	98	165	159	152	169
14	91	74	64	109	93	113	170	78	150	162	163	159
15	93	78	89	102	77	133	166	59	140	178	161	155
16	95	91	94	110	52	143	163	77	143	164	159	130
17	99	86	103	98	50	136	143	92	146	164	160	142
18	103	89	115	84	50	156	135	93	132	146	162	142
19	111	84	109	77	42	159	154	85	95	138	166	138
20	115	74	109	76	30	163	151	76	84	177	169	120
21	114	76	154	77	30	171	144	68	68	181	171	134
22	115	74	158	48	36	148	125	77	63	178	155	140
23	119	73	158	38	45	156	116	55	59	188	127	139
24	106	82	154	38	48	163	104	61	65	209	99	118
25	136	85	135	30	55	168	96	85	81	209	88	114
26	115	88	152	13	45	152	102	101	93	173	108	114
27	99	97	143	22	57	142	115	118	110	162	97	117
28	83	93	130	31	57	126	117	118	122	157	95	114
29	78	103	115	48	59	122	137	111	135	153		110
30	75	107	103	39	72	94	128	103	159	149		127
31		113		36	100		111		177	130		147
MEAN	99.7	82.7	95.1	70.4	58.1	138.2	125.1	97.9	122.7	165.8	138.0	137.0

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

	1978									1979		
DAY	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
1	130.0	181.4	149.1	142.9	106.0	159.8	139.0	152.0	166.6	194.1*	185.8	168.5
2	129.8	183.0	147.0*	127.6	106.0	171.7*	137.8	159.0	167.6	200.1	185.6	170.7
3	134.5	182.2A	130.8	116.5	109.6	167.0	131.7	169.9	164.2	203.5*	187.4*	173.3
4	143.3*	178.4	118.6	117.4	112.3	174.4*	132.0*	177.4	165.3	192.7*	187.7	181.4
5	146.7*	173.9*	116.9	118.9	117.6	179.4	138.7*	181.2	169.5	194.9	197.4	180.1*
6	145.3*	173.1	109.8	119.3*	122.6	181.1	137.4	172.2*	164.5	190.9	206.5	182.4
7	146.9	162.6*	110.6	128.9	128.2	177.5	141.6	174.6	178.5*	186.2	203.4	183.1*
8	148.6	143.4	109.3	135.9	130.6	167.1	150.1	168.0*	189.9	200.1	207.2*	178.9
9	156.1	135.1	106.5	147.1*	128.1*	157.6*	155.8	164.9*	189.6	192.6	198.7	181.4
10	155.4	129.5	108.4	156.0*	127.5	149.8	162.3	166.3	204.7	186.2	198.4*	180.6
11	162.8*	133.8	113.2	163.2*	121.7	141.5	171.6*	163.7	210.5	179.5	202.2*	181.7*
12	156.2	138.2	116.4*	174.2*	124.5	138.5	177.2	150.4	217.3	174.5	195.4	188.7
13	145.6	140.2	120.3*	185.5	134.9	138.0	178.5	145.3	210.6*	193.9	195.4	186.3
14	139.1	143.7	126.4*	163.1	132.7	143.5*	180.1	136.3	197.0	200.0*	204.2*	189.4
15	141.4	146.1	132.5	169.5	130.0*	152.6	182.0	133.8	192.7	192.1*	205.0*	181.3
16	137.6	147.8*	139.5*	163.4	123.6	161.5	176.7*	128.8	180.5	189.9*	209.2	183.5*
17	133.4	143.8	149.0	159.5	119.3*	161.8	171.5	128.1	177.7	175.7	213.1	177.7
18	134.1	135.6	153.5*	154.1*	115.6	169.3*	169.4	127.4	161.5	177.6	237.7	186.6*
19	139.5*	133.6	162.0*	148.6	111.6	168.8*	170.4	128.9	152.9	187.8	237.8	177.6
20	138.1	132.3*	174.2	142.9*	107.5	168.6	171.0	134.9	138.1	197.2	230.1*	184.1
21	138.4*	132.7	185.4*	140.2	104.8	172.5	166.9*	126.0	132.1*	210.3	225.1	182.2
22	146.4	135.7*	198.3	127.0	106.0	171.5*	161.4	127.1	132.7	226.9	223.3	181.1
23	162.9	142.9*	196.7	123.4*	104.1	165.5*	161.4	121.9	133.4	225.1	196.8	188.5
24	159.8	146.5*	194.8	118.5	105.4	158.9	156.9	123.5	135.2*	208.5	182.8	188.3
25	159.1*	147.6	183.5	113.7	104.2	157.2	156.1	124.7*	138.0	206.1	167.5	188.2
26	166.7	152.8	182.4*	112.2	100.7	148.5	154.4	132.7	144.2	192.9	166.0	200.2
27	172.8	150.6*	179.5	110.8	107.3*	146.2*	150.7	144.4*	148.7*	205.4	162.7	187.9
28	176.6*	147.1*	174.1	109.9	107.7*	147.6	148.4*	154.1	164.1	209.6	163.6	188.6
29	185.2	148.6	167.4	109.2	116.2	148.1	149.8	162.2	166.2	209.3		191.4
30	182.1*	147.2*	154.6*	109.2	124.1	142.6	146.5	167.8	181.7	194.1*		186.6
31		152.6		108.8	133.9*		144.8		195.1	193.7		201.4*
MEAN	150.5	149.7	146.8	135.4	116.9	159.6	157.1	148.2	170.0	196.5	199.1	184.0

* adjusted for burst
A = interpolated data point

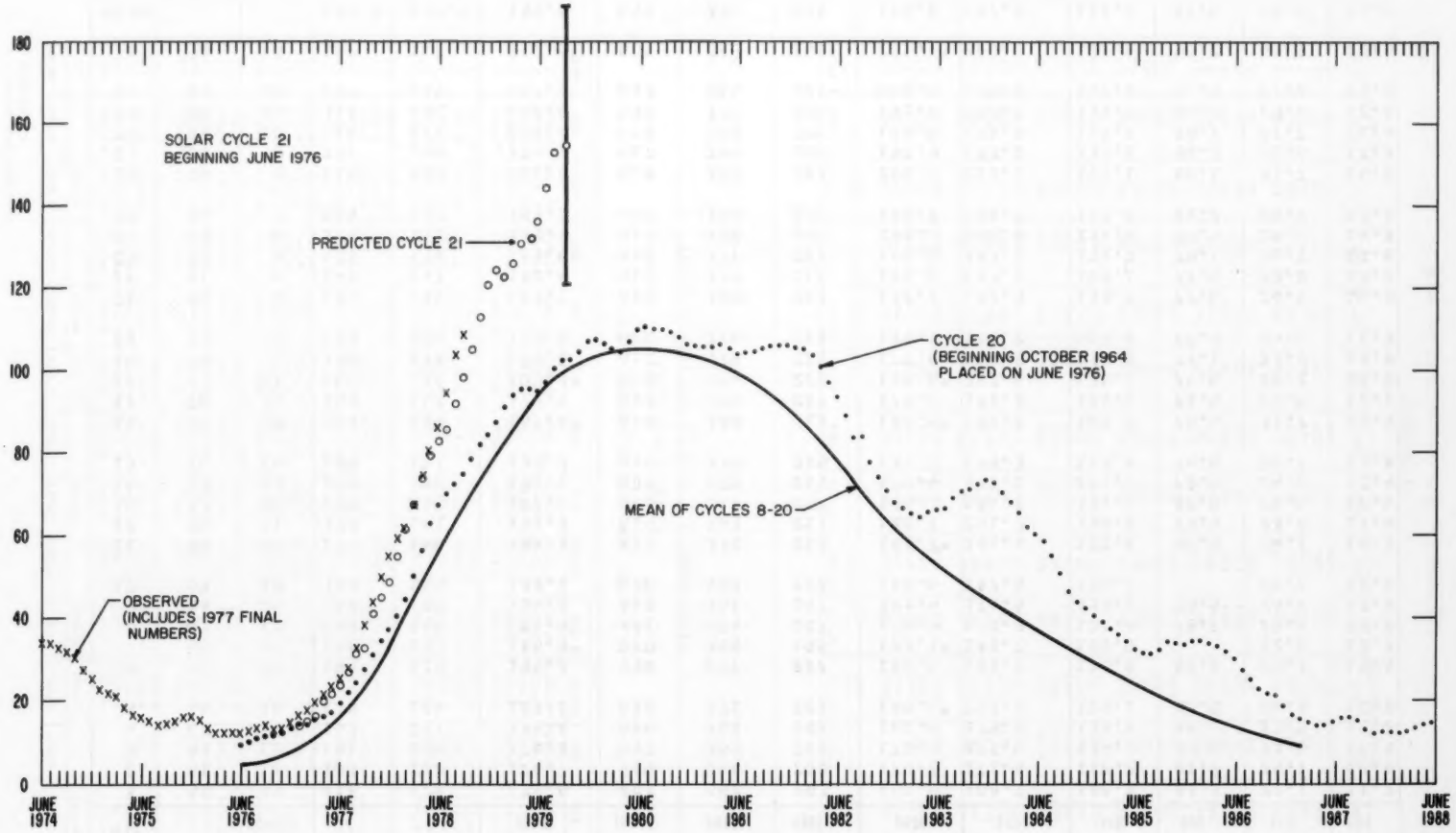
DAILY SOLAR INDICES

MARCH 1979

MAR 1979	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_Z	$R_{A'}$	OTTAWA 2800	AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	60	10	116	124	171.6	603	357	203	168.5	168.7	106.0	83.8	22.7	11.2
2	61	11	138	123	173.7	589	346	200	170.7	171.4	112.2	81.2	25.1	12.6
3	62	12	141	125	176.3	597	355	200	173.3	170.6	114.0	83.6	23.4	12.5
4	63	13	142	127	184.4	606	360	208	181.4	179.6	118.5	85.2	23.5	12.2
5	64	14	135	124	183.0*	608	371	223	180.1*	200.1	126.1	88.6	24.0	12.2
6	65	15	144	130	185.2	590	357	207	182.4	186.5	118.5	82.0	24.3	15.4
7	66	16	146	143	185.9*	579	356	195	183.1*	180.2	120.9		22.2	12.7
8	67	17	143	145	181.4	601	354	207	178.9	173.9	121.6	78.7	25.2	13.2
9	68	18	146	162	184.0	610	361	207	181.4	174.5	115.1	78.8	24.4	13.6
10	69	19	140	145	183.0	606	362	208	180.6	187.6	114.6		22.2	11.6
11	70	20	156	146	184.1*	612	372	213	181.7*	181.4	122.5	80.0	24.1	15.1
12	71	21	170	141	191.0	619	383	211	188.7	201.9	116.4	79.9	28.8	13.4
13	72	22	169	146	188.6	620	380	207	186.3	184.2	121.1	82.5	25.4	12.4
14	73	23	159	155	191.5	608	375	209	189.4	191.1	121.2	72.0	24.6	12.4
15	74	24	155	157	183.3	610	370	205	181.3	179.3	119.8	74.6	25.7	11.8
16	75	25	130	139	185.4*	616	383	213	183.5*	188.2	123.3	79.4	31.7	16.9
17	76	26	142	147	179.5	608	375	207	177.7	190.0	114.6	73.5	22.5	12.1
18	77	27	142	130	190.3*	619	384	222	188.6*	203.6	126.0	74.4	26.2	13.6
19	78	1	138	128	179.0	612	379	221	177.6	191.9	118.2	77.1	23.0	10.6
20	79	2	120	124	185.6	606	376	218	184.1	184.2	115.8	77.0	24.3	11.9
21	80	3	134	131	183.5	600	369	213	182.2	182.9	110.9	77.6	20.5	14.2
22	81	4	140	143	182.4	612	377	211	181.1	177.1	109.1	77.5	20.0	12.0
23	82	5	139	138	189.6	612	377	222	188.5	187.1	111.3	79.1	26.0	13.6
24	83	6	118	112	189.4	616	395	224	188.3	195.6	114.9	79.5	26.1	14.8
25	84	7	114	113	189.1	627	389	232	188.2	190.3	117.3	81.2	25.9	12.6
26	85	8	114	108	201.0	638	397	228	200.2	210.1	127.1	85.1	21.7	14.6
27	86	9	117	104	188.7	617	394	225	187.9	193.2	119.6	98.3	33.0	17.3
28	87	10	114	111	189.2	610	390	221	188.6	190.8	115.2	88.3	27.7	11.4
29	88	11	110	131	192.0	598	377	221	191.4	202.5	119.3	84.7	29.4	12.0
30	89	12	127	139	187.0	603	384	224	186.6	188.0	117.4	82.5	27.2	13.2
31	90	13	147	117	201.8*	609	389	240	201.4*	209.9	128.6	95.2	40.9	50.6
MEAN			137.0	132.5	185.8	608	374	214	184.0	187.6	118.0	81.4	25.5	14.3

* Adjusted for burst.

Note: Data gaps in AFGL Sagamore Hill are due to equipment problems.



OBSERVED AND PREDICTED SUNSPOT NUMBERS

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1976	15.2	13.2	12.2	12.6	12.5	12.2	12.9	14.0	14.3	13.4	13.5	14.8
1977	16.7	18.1	20.0	22.2	24.2	26.3	29.0	33.4	39.1	45.6	51.9	56.9
1978	61.3	64.5	69.6	76.9	83.2	89.3	97.4	104.0	108.4	112.3	116.6	122.4
										(3)	(6)	(9)
1979	127.3	131.7	136.1	138.9	141.3	145.9	150.2	153.1	155.3	156.6	157.1*	156.7
	(13)	(14)	(17)	(22)	(26)	(28)	(31)	(34)	(34)	(35)	(36)	(36)
1980	155.3	153.8	152.9	153.3	152.8	149.4	145.6	142.5	140.7	139.7	138.3	137.0
	(36)	(35)	(34)	(33)	(35)	(37)	(39)	(41)	(41)	(42)	(43)	(46)
1981	136.8	136.4	134.0	131.1	128.3	125.5	124.0	123.6	122.4	120.7	118.1	114.8
	(49)	(48)	(46)	(45)	(45)	(45)	(44)	(43)	(43)	(44)	(42)	(40)
1982	111.8	108.5	106.0	104.1	102.0	99.8	96.1	91.6	87.4	82.7	79.3	75.6
	(38)	(37)	(36)	(34)	(32)	(30)	(28)	(25)	(24)	(21)	(20)	(20)
1983	71.3	68.2	66.0	63.5	61.0	58.3	56.1	54.1	52.3	51.2	50.4	49.6
	(20)	(20)	(21)	(22)	(22)	(23)	(24)	(26)	(28)	(29)	(31)	(31)
1984	48.5	46.6	43.7	40.4	37.8	36.8	35.9	34.3	32.7	31.4	30.1	28.5
	(31)	(30)	(29)	(29)	(30)	(31)	(32)	(31)	(31)	(29)	(28)	(27)
1985	27.4	26.7	25.9	25.5	24.8	23.8	23.1	22.4	21.7	20.8	20.0	19.3
	(27)	(27)	(26)	(26)	(26)	(25)	(23)	(23)	(22)	(23)	(24)	(24)
1986	18.8	17.9	17.0	16.0	14.7	13.4	12.4	11.8	11.6	11.5	11.3	11.3
	(25)	(24)	(24)	(23)	(22)	(21)	(20)	(19)	(17)	(16)	(15)	(13)
1987	11.8	12.5	13.4	14.4	15.5	16.7	17.8					
	(12)	(11)	(11)	(12)	(13)	(13)	(14)					

The table gives observed Zürich smoothed sunspot numbers for Cycle 21 up to the one calculated from the latest observed data, marked by a vertical bar. They are based on final Zürich numbers through 1978 and provisional Zürich numbers thereafter. Some of these data after the June 1976 value will change slightly when final data for 1979 are received. The numbers after the vertical bar are predictions by the McNish-Lincoln method (see *Explanation of Data Reports*, February 1978). Shown in parentheses are the corresponding absolute values of the 90% confidence interval, an indication of the uncertainty above and below the predicted number.

The McNish-Lincoln method is very sensitive to the identification of a minimum epoch. In SGD 390-401 issues, the Cycle 21 predictions were based on March 1976 as the minimum epoch. Latest studies, including one published by Waldmeier, show that June 1976 is the more appropriate epoch of minimum. Thus, we have adopted a June 1976 mimimum.

*Prediction of Sunspot Maximum -- The McNish-Lincoln prediction method is recommended for predictions up to only one year ahead. From that point, the predictions regress rapidly towards the mean value. Combining this McNish-Lincoln prediction of sunspot maximum with the Ohl method (as done by Sargent, see *Explanation of Data Reports*, February 1979) indicates that the most probable value for sunspot maximum is 156 ± 33.

Hα SOLAR FLARES

MARCH 1979

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE MAR	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA millionths of Disk	CORR. AREA Sq. Deg.	
RAMY	01	1126	1126	1135	S22	E57	.836		5.8	9	SN	2	C		17		
RAMY	01	1132	1140	1210	S25	E33	.590		4.0	38	SB	2	C		86		F
RAMY	01	1308	1308	1327	S34	W27	.596		27.5	19	SN	4	C		27		
RAMY	01	1457	1516	1544	S22	E57	.836		5.9	47	SB	3	C		127		
HOLL	01	1550E	1550U	1627	S22	E57	.836		5.9	37D	SN	3	C		37		F
RAMY	01	1649	1651	1735	S22	E56	.828		5.9	46	SB	3	C		20		
HOLL	01	1713	1713	1723	S34	W29	.614		27.5	10	SN	2	C		18		
RAMY	01	1823	1824	1830	N22	W12	.522		28.9	7	SF	3	C		22		
PALE	01	2013E	2018U	2021D	S18	E90	.999	15864	8.6	8D	1N	3	V		0		
RAMY	01	2015E	2018	2042	S15	E90	.999	15864	8.6	27D	1B	3	C		0		
PALE	01	2219E	2219	2223D	S21	E55	.817		6.1	4D	SN	3	C		20		
MITK	02	0327E		0350	S22	E53	.799	15856	6.1	23D	1N		C	0327	230	4.0	E
MITK	02	0639	0647	0720	S23	E29	.530	15850	4.5	41	1N		C	0647	170	2.1	E
MANI	02	0641	0647	0655	S25	E19	.429		3.7	14	SN	3	C		50		F
HTPR	02	0651E		0700	S22	E46	.728		5.7	9D	SN		C	0653	120	1.7	E
HTPR	02	1048	1053	1110	S20	E47	.734		6.0	22	SF		C	1053	90	1.4	E
HTPR	02	1109	1111	1115	S18	W43	.685		27.2	6	SN		C	1111	30	.4	
HTPR	02	1122	1123	1126	S04	E90	1.000		9.2	4	SF		C	1123	20		A
HTPR	02	1218	1224	1230	N19	E90	1.001		9.3	12	SN		C	1224	120		A
RAMY	02	1225	1238	1310	S22	E46	.728		6.0	45	SB	4	C		143		F
RAMY	02	1225	1225	1310	S22	E46	.728		6.0	45	SN	4	C		19		F
HTPR	02	1233	1239	1253	S19	E46	.721	15856	6.0	20	1F		C	1239	160	2.2	E
HTPR	02	1234	1246	1310	S22	E24	.461		4.3	36	SF		C	1246	20	.2	E
RAMY	02	1245	1245	1303	S24	E19	.419		4.0	18	SN	4	C		19		F
RAMY	02	1332	1335	1340	S19	W44	.698		27.3	8	SB	4	C		22		
RAMY	02	1335	1338	1404	S24	E19	.419		4.0	29	SB	4	C		78		
HTPR	02	1336	1340	1405	S22	E21	.424		4.1	29	SN		C	1340	100	1.0	E
HTPR	02	1523	1526	1529	N13	E85	.998		9.0	6	SF		C	1526	30		A
BIGB	02	1605	1607	1623	S19	W47	.733		27.1	18	SN		C	1607	50	.7	
HTPR	02	1607	1608	1617	S18	W58	.842		26.3	10	SF		C	1608	60	1.2	E
RAMY	02	1608	1608	1633	S19	W48	.744		27.1	25	SB	3	C		89		
PALE	02	2019	2019	2025	S19	E78	.972		8.7	6	SF	3	C		11		DE
PALE	02	2128	2128	2134	S16	E75	.960		8.5	6	SN	3	C		60		F
RAMY	02	2129E	2131	2140D	S17	E78	.972		8.7	11D	SB	3	C		0		
PALE	03	0234E	0234U	0237D	S16	W73	.950		25.6	3D	SN	3	C		38		
PALE	03	0336E	0336U	0336D	S24	E12	.347		4.1		SN	3	C		36		DE
HTPR	03	0950	0952	1001	S19	E78	.972		9.3	11	SN		C	0952	70		
HTPR	03	0957	1011	1027	S18	W60	.860		26.9	30	SF		C	1011	20	.4	E
WEND	03	1101E		1128	S18	E73	.949	15864	8.9	27D	2N		V		300		C
HTPR	03	1101	1107	1132	S18	E78	.972	15864	9.3	31	1B		C	1107	120		EK
RAMY	03	1115E	1115U	1140	S17	E70	.932		8.7	25D	SN	3	C		133		
HTPR	03	1204	1205	1206	S20	E33	.565		6.0	2	SF		C	1205	20	.2	
RAMY	03	1206	1206	1208	S22	E33	.574		6.0	2	SB	3	C		25		
RAMY	03	1226	1227	1235	S19	W57	.834		27.2	9	SN	3	C		22		
RAMY	03	1338	1339	1353	S18	W60	.860		27.1	15	SN	3	C		17		
RAMY	03	1409	1418	1430	S17	E69	.926		8.8	21	SB	3	C		28		
HTPR	03	1508	1510	1512	S17	W20	.372		2.1	4	SF		C	1510	10	.1	
RAMY	03	1511	1511	1514	S20	W23	.433		1.9	3	SB	3	C		23		
RAMY	03	1529	1529	1533	S20	W23	.433		1.9	4	SN	3	C		19		
RAMY	03	1702E	1702U	1711	S20	W24	.447		1.9	9D	SN	3	C		22		
HOLL	03	1707	1718	1808	S16	E69	.926		8.9	61	SB	3	C		97		F
RAMY	03	1716	1720	1725	S16	E67	.913		8.7	9	SN	3	C		25		
HOLL	03	1801	1805	1824	S20	W23	.433		2.0	23	SB	3	C		65		
RAMY	03	1801	1805	1824	S20	W24	.447		2.0	23	SB	3	C		86		
PALE	03	1802	1803	1816	S20	W25	.460		1.9	14	SN	3	C		40		DE
HOLL	03	1806	1820	1852	S24	E 4	.296	15850	4.1	46	1B	3	C		353		U F
HOLL	03	1813	1824	1828	S20	W62	.877		27.1	15	SN	3	C		15		
PALE	03	1815	1823	1824D	N25	W 4	.537	15843	3.5	9D	1B	3	V		309		H F
RAMY	03	1815	1819	1850	S24	E 5	.300	15850	4.1	35	1B	3	C		323		F
PALE	03	1815	1823	1848	S25	E 4	.312	15856	4.1	33	1B	3	C		309		H F
BIGB	03	2014	2022	2045	N20	E60	.906		8.3	31	SN		C	2022	80	1.6	
RAMY	03	2015	2020	2035	N16	E55	.859		8.0	20	SB	3	C		69		F
PALE	03	2019	2019	2040D	N16	E57	.875		8.1	21D	SN	3	C		30		DE
HTPR	04	1206E		1215	N13	E54	.842		8.6	9D	SF		C	1213	10	.2	
WEND	04	1216E		1228D	N12	E55	.848		8.6	12D	SF		V				
HTPR	04	1500	1540	1553D	S19	W40	.650		1.6	53D	SF		C	1540	50	.6	EFKT
RAMY	04	1535E	1541	1636	S19	W35	.587		2.0	61D	SB	3	C		89		F
HOLL	04	1601E	1624	1641	S20	W38	.629		1.8	40D	SB	3	C		71		F
HOLL	04	1638	1641	1651	N12	E52	.821		8.6	13	SN	3	C		21		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE MAR	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		CORD.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	04	1643	1716	1740	S20	W39	.641		1.8	57	SB	3	C		88		F
RAMY	04	1714	1717	1720	S20	W36	.604		2.0	6	SN	3	C		23		
HOLL	04	1928	1931	1944	S20	W40	.653		1.8	16	SB	3	C		27		
HOLL	04	1937	1939	1944	S20	W78	.972		27.0	7	SN	3	C		16		
HOLL	04	2030	2031	2037	S20	W40	.653		1.9	7	SN	3	C		32		
HOLL	04	2035	2044	2053	N35	W14	.698		3.8	18	SN	3	C		36		
HOLL	04	2153	2153	2203	S20	W41	.665		1.8	10	SB	3	C		31		
HOLL	04	2208	2211	2251	N21	E52	.851		8.8	43	SB	3	C		86		F
HOLL	04	2216	2220	2230	S20	W41	.665		1.9	14	SB	3	C		18		
HOLL	04	2234	2250	2327	S20	W42	.677		1.8	53	SB	3	C		156		F
HOLL	04	2256	2256	2304	S20	W80	.979		27.0	8	SN	3	C		30		
RAMY	05	1231	1231	1237	N35	W23	.737		3.8	6	SN	3	C		19		
RAMY	05	1237	1239	1249	S18	E47	.731		9.1	12	SB	3	C		46		
HTPR	05	1238		1250D	S20	W49	.756		1.9	12D	SF		C	1243	60	.9	E
RAMY	05	1241	1241	1250	S20	W47	.734		2.0	9	SN	3	C		20		
RAMY	05	1405	1415	1517D	N11	E38	.669	15863	8.4	72D	1B	3	C		200		F
HTPR	05	1405E		1419D	N14	E37	.675	15862	8.4	14D	2N		C	1417	900	11.7	EFI
HOLL	05	1408	1415	1513	N21	E44	.784		8.9	65	SB	3	C		85		F
HOLL	05	1409	1416	1644	N12	E25	.522	15862	7.5	155	1B	3	C		290		U F
RAMY	05	1409	1413	1454	N12	E26	.533	15862	7.5	45	1B	3	C		250		U F
HOLL	05	1415	1418	1558	N13	E39	.691	15863	8.5	103	1B	3	C		236		F
HOLL	05	1451	1456	1502	N35	W24	.742		3.8	11	SN	3	C		31		
HOLL	05	1517	1534	1611	S20	W51	.777	15849	1.8	54	2B	3	C		396		U F
BIGB	05	1542E		1607	S19	W54	.806	15849	1.6	25D	1N		P	1542	190	3.3	
HOLL	05	1637	1659	1731D	N35	W25	.748		3.8	54D	SB	3	C		101		U
RAMY	05	1732	1742	1747	N35	W25	.748		3.9	15	SN	3	C		111		
RAMY	05	1802	1807	1816	N35	W25	.748		3.9	14	SN	3	C		52		
RAMY	05	1842	1851	1859	N35	W26	.753		3.8	17	SB	3	C		48		
HOLL	05	1849	1851	1856	N35	W26	.753		3.8	7	SB	3	C		32		
RAMY	05	1930	1936	1944	N35	W26	.753		3.9	14	SB	3	C		52		
BIGB	05	1932	1936	1942	N36	W27	.768		3.8	10	SN		C	1936	40	.5	
PALE	05	1938E	1938	1946	N34	W27	.749		3.8	8D	SN	3	C		42		
PALE	05	2118E	2118	2122	S19	W52	.786		2.0	4D	SN	3	C		20		DE
HOLL	05	2335	2352	0004	S19	E54	.806		10.0	29	SB	3	C		20		
HOLL	05	2358	0022	0024D	S19	W53	.796		2.0	26D	SB	3	V		30		F
MANI	06	0020E	0022	0023D	S16	W54	.804		2.0	3D	SB	2	C		30		F
MANI	06	0630	0634	0648	S19	E36	.600		9.0	18	SN	2	C		30		
MANI	06	0656	0700	0729	S19	E35	.587		8.9	33	SN	2	C		40		
WEND	06	0825		0836	S23	W30	.542		4.1	11	SN		P				E
RAMY	06	1423	1431	1506	S21	W 8	.272		6.0	43	SB	2	C		129		
WEND	06	1425E	1432	1502	S21	W11	.299	15856	5.8	37D	2F		P		700	7.8	U
HOLL	06	1439	1506	1542	S22	W10	.303		5.9	63	SN	3	C		52		
RAMY	06	1511	1514	1516	S19	W62	.876		2.0	5	SN	2	C		129		
HOLL	06	1511	1513	1516	S19	W61	.868		2.1	5	SN	3	C		20		
RAMY	06	1617	1617	1626	S18	E32	.544		9.1	9	SN	2	C		20		
RAMY	06	1621	1629	1713	N10	E22	.468		8.3	52	SN	3	C		55		
BIGB	06	1621	1650	1704	N13	E26	.542		8.6	43	SN		C	1650	90	1.0	
RAMY	06	1627	1636	1656	N10	E11	.349		7.5	29	SN	3	C		64		
RAMY	06	1638	1638	1643	S18	E32	.544		9.1	5	SN	3	C		25		
BIGB	06	1717	1720	1747	S18	W65	.899	15849	1.8	30	1N		C	1720	130	2.4	
HOLL	06	1718	1724	1746	S19	W63	.884		2.0	28	SB	3	C		115		F
RAMY	06	1718	1724	1741	S19	W63	.884		2.0	23	SB	3	C		88		
BIGB	06	1806	1807	1825	S17	W65	.899	15849	1.9	19	1N		C	1807	100	2.4	E
HOLL	06	1808	1808	1820	S19	W63	.884		2.0	12	SB	3	C		57		F R
RAMY	06	1808	1809	1814	S19	W63	.884		2.0	6	SN	3	C		17		
RAMY	06	1816	1818	1820	S19	W63	.884		2.0	4	SN	3	C		30		
BIGB	06	1823	1849	1854	S24	W65	.901	15849	1.9	31	1N		C	1849	130	3.2	
RAMY	06	1915	1919	1936	N10	E10	.341		7.6	21	SN	3	C		41		
BIGB	06	2013	2016	2021	S19	E61	.868		11.4	8	SN		C	2016	25	.5	E
HOLL	06	2117	2127	2212	N35	W40	.835		3.9	55	SB	3	C		139		
BIGB	06	2123	2143	2220	N35	W42	.847		3.7	57	SN		C	2143	60	.8	
RAMY	06	2127	2127	2131D	N35	W40	.835		3.9	4D	SN	2	C		22		
BIGB	06	2143	2153	2213	N14	E16	.447		8.1	30	SN		C	2153	50	.5	E
HOLL	06	2153	2153	2201	N11	E18	.432		8.3	8	SB	3	C		27		
BIGB	06	2159	2213	2242	N13	E14	.416		8.0	43	SN		C	2213	130	1.4	
HOLL	06	2201	2208	2212D	N11	E18	.432		8.3	11D	SB	3	C		120		F
BIGB	06	2214	2223	2235	N14	E22	.507		8.6	21	SN		C	2223	50	.6	
BIGB	06	2245	2315	0001	S24	W38	.643		4.1	76	SN		C	2315	60	.8	
HOLL	06	2358	0022	0024D	S19	W53	.796		3.0	26D	SB	3	V		30		F

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE MAR	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		CORD.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
MANI	07	0616E	0617	0630D	S20	E24	.447		9.1	14D	SN	3	C		20		
MANI	07	0620E	0622	0635D	N22	W 7	.501		6.7	15D	SF	3	C		25		
MANI	07	0647E	0649	0701	S19	E20	.386		8.8	14D	SB	3	C		60		F
RAMY	07	1126	1137	1148	N10	E12	.358		8.4	22	SN	2	C		31		
RAMY	07	1149	1149	1157	N10	E12	.358		8.4	8	SN	3	C		49		
RAMY	07	1204	1205	1217	S19	W73	.949		2.0	13	SB	3	C		36		
MCMA	07	1303	1304	1308	N13	E07	.365	15863	8.1	5	SN		C	1304	60	1.6	E
RAMY	07	1303	1304	1310	N10	W 0	.297		7.5	7	SB	3	C		42		
MCMA	07	1313	1318	1327	S17	W74	.954	15849	2.0	14	SF		C	1318	20	.7	E
MCMA	07	1328	1335	1345	N35	W50	.893	15860	3.8	17	SF		C	1335	30	.7	E
MCMA	07	1332	1337	1345	N13	E07	.365	15863	8.1	13	SN		C	1337	40	.4	E
MCMA	07	1335	1340	1410	S24	W52	.793	15850	3.7	35	SF		C	1340	30	.5	E
MCMA	07	1344	1359	1417	S17	E17	.330	15864	8.8	33	SN		C	1359	60	.6	E
MCMA	07	1348	1408	1419	S17	W75	.959	15849	2.0	31	SN		C	1408	40	1.6	E
MCMA	07	1531	1534	1545	S17	E17	.330	15864	8.9	14	SN		C	1534	50	.5	E
MCMA	07	1548	1605	1625	S22	W50	.770	15850	3.9	37	SF		C	1605	100	1.6	E
BIGB	07	1602	1607	1620	S22	W50	.770		3.9	18	SN		C	1607	50	.8	
HOLL	07	1602	1605	1620	S25	W48	.756		4.1	18	SB	3	C		87		
MCMA	07	1635	1703	1810D	S20	W26	.473	15856	5.7	95D	1N		C	1703	165	2.0	L
HOLL	07	1653	1655	1730	S22	W23	.448		6.0	37	SB	3	C		55		U
BIGB	07	1653	1702	1737	S22	W25	.473		5.8	44	SN		C	1702	90	1.0	G
BIGB	07	1654	1713	1718	S15	W80	.980		1.7	24	SN		C	1713	30		E
MCMA	07	1732	1739	1753	S17	W75	.959	15849	2.1	21	SF		C	1739	20	.7	D
HOLL	07	1934	1936	1951	S20	W74	.954		2.3	17	SB	3	C		35		F
HOLL	07	2224	2233	2333	S22	W85	.992		1.6	69	SN	3	C		14		
HOLL	07	2345	2348	0014	S25	W39	.659		5.1	29	SB	3	C		74		
MANI	08	0400E	0403U	0408	N23	W19	.581		6.7	8D	SN	3	C		30		
HTPR	08	0752	0822	0915	S19	W32	.548	15856	5.9	83	1N		C	0822	400	5.0	EK
MANI	08	0805E	0809	0903D	S21	E33	.570		10.8	58D	SB	3	C		80		F
HTPR	08	1015	1020	1026	N18	E90	1.001		15.2	11	SN		C	1020	20		
HTPR	08	1100	1103	1109	N13	W05	.356		8.1	9	SB		C	1103	100	1.0	
HTPR	08	1130	1135	1210	N22	W24	.609		6.7	40	SF		C	1135	60	.7	E
RAMY	08	1143E	1144U	1215	N22	W23	.601		6.8	32D	SB	2	C		58		
HTPR	08	1328	1331	1338	N18	E90	1.001		15.3	10	SF		C	1331	20	.3	
RAMY	08	1335	1357	1418	S15	E34	.562		11.1	43	SB	3	C		132		
HTPR	08	1348	1357	1408	S14	E41	.653		11.7	20	SF		C	1357	60	.8	E
HTPR	08	1444	1449	1453	S17	E46	.718		12.1	9	SF		C	1449	30	.4	
RAMY	08	1449	1449	1453	S24	E52	.793		12.5	4	SN	3	C		19		
RAMY	08	1452	1535	1540D	S15	E33	.548	15865	11.1	48D	1B	3	C		215		
RAMY	08	1459	1459	1506	S18	E 6	.212		9.1	7	SN	3	C		24		
HTPR	08	1512	1518	1520	S12	E36	.585		11.3	8	SF		C	1518	40	.5	E
HOLL	08	1522	1525U	1559	N20	W30	.645		6.4	37	SB	3	C		35		
HTPR	08	1524	1526	1540	N23	W27	.645		6.6	16	SF		C	1526	30	.3	E
RAMY	08	1524	1525	1540D	N22	W25	.618		6.8	16D	SB	3	C		50		
HTPR	08	1529	1534	1550	S12	E36	.585		11.3	21	SN		C	1534	70	.9	E
HOLL	08	1549	1702	1753	N28	E36	.760		11.4	124	SF	3	C		24		
HTPR	08	1610	1618	1640	N18	E90	1.001		15.4	30	SF		C	1618	20		
BIGB	08	1618	1620	1626	N16	E90	1.001		15.4	8	SN		C	1620	10		
HTPR	08	1625	1630	1640	S12	E35	.571		11.3	15	SF		C	1630	30	.4	E
BIGB	08	1709		1715D	N36	W70	.980		3.5	6D	SF		P	1715	10		D
BIGB	08	1711	1713	1720	S25	E56	.831		12.9	9	SN		C	1713	30	.6	
HOLL	08	1715	1715	1755	S 9	E36	.583		11.4	40	SN	3	C		32		
BIGB	08	1734	1746	1746D	N22	W26	.627		6.8	12D	SF		P	1746	50	.6	
HOLL	08	1740	1742	1756	N20	W31	.655		6.4	16	SN	3	C		26		
HOLL	08	1838	1843	1846	N25	E37	.747		11.6	8	SF	3	C		48		
BIGB	08	1845	1911	1911D	N16	E90	1.001		15.5	26D	SN		P	1911	20		
BIGB	08	2108	2118	2135	N15	E90	1.001		15.6	27	SN		P	2118	20		
BIGB	08	2113	2134	2135	S14	W90	1.000		2.1	22	SN		P	2134	45		
BIGB	08	2128	2131	2137	S18	W90	.999		2.1	9	SN		C	2131	30		
BIGB	08	2148	2151	2153	N13	W03	.350		8.7	5	SF		C	2151	20	.2	D
BIGB	08	2203	2204	2221	N15	E90	1.001		15.7	18	SB		C	2204	40		
BIGB	08	2225	2236	2252	N15	E90	1.001		15.7	27	SN		C	2236	15		
BIGB	08	2329	2332	2337	S19	W90	.999		2.2	8	SN		C	2332	10		
BIGB	08	2338	2353	0003	N15	E90	1.001		15.7	25	SN		C	2353	15		
HOLL	08	2355	2355	0005	N22	W25	.618		7.1	10	SN	3	C		23		
BIGB	09	0009	0013	0023	N15	E90	1.001		15.8	14	SN		C	0013	10		
HTPR	09	0700	0707	0820	S13	E29	.486		11.5	80	SN		C	0707	40	.5	EK
ISTA	09	0730E		0737	N18	E80	.992		15.3	7D	SN						D
HTPR	09	0731	0733	0740	N17	E85	.999		15.7	9	SN		C	0733	80		
HTPR	09	0745	0752	0759	S13	E28	.472		11.4	14	SF		C	0752	50	.6	E

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS'			REMARKS
	DATE MAR	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME — UT	MEAS. AREA Millionths of Disk	CORR. AREA Sq. Deg.	
HTPR	09	0821	0829	0925	N17	E84	.998		15.6	64	SF		C	0829	30		
KAND	09	0848		0855	S19	W90	.999		2.6	7	SN		C				
KAND	09	0906	0910	0932D	S19	W90	.999		2.6	26D	SN		C				
HTPR	09	0935	0948	0950	N17	E83	.997		15.6	15	SN		C	0948	140		AEK
HTPR	09	1441	1443	1455	N14	W13	.420		8.6	14	SN		C	1443	80	.8	
RAMY	09	1442	1444	1452	N19	W19	.533		8.2	10	SB	3	C		22		
RAMY	09	1456	1504	1522D	N24	E26	.646		11.6	26D	SN	3	C		30		
RAMY	09	1657	1659	1703	N24	E26	.646		11.7	6	SN	3	C		31		
RAMY	09	1747	1747	1755	N16	E71	.961		15.1	8	SF	3	C		0		
RAMY	09	1805	1806	1808	N16	E69	.952		14.9	3	SF	3	C		0		
RAMY	09	1811	1817	1840	N24	E25	.638		11.6	29	SN	3	C		41		F
RAMY	09	1822	1833	1840	S14	E21	.370		11.3	18	SN	3	C		31		
RAMY	09	1844	1850	1906	S23	W50	.772		6.0	22	SB	3	C		57		F
RAMY	09	1852	1852	1858	S14	E21	.370		11.4	6	SB	3	C		51		F
PALE	10	0050E	0053	0110	S35	W90	.997		3.3	20D	SF	2	C		20		Y
HTPR	10	0906	0909	0920	S14	E09	.193		11.1	14	SF		C	0909	60	.6	E
MCMA	10	1416	1418	1425	N22	W48	.823	15870	7.0	9	SF		C	1418	25	.4	D
HTPR	10	1459		1503D	N25	E90	1.001		17.4	4D	SN		C	1502	40		A
HOLL	10	1620E	1625	1710	S21	E60	.861	15876	15.2	50D	1B	3	C		202		U F
HTPR	10	1622E		1645D	S22	E62	.878		15.3	23D	SN		C	1624	70	1.4	E
HTPR	10	1640		1652	N20	E90	1.001		17.4	12	SN		C	1644	50		A
HOLL	10	1650E	1650U	1657	N20	E79	.991		16.6	7D	SN	3	C		23		
HOLL	10	1724	1729	1738	N16	E58	.882		15.1	14	SB	3	C		24		
BIGB	10	1729	1732	1740	N17	E60	.899		15.2	11	SN		C	1732	20	.4	
HOLL	10	1800	1801	1803	S14	W32	.532		8.4	3	SN	3	C		22		
HOLL	10	1804	1827	1830	S14	W32	.532		8.4	26	SB	3	C		35		F
HOLL	10	1846	1850	1902	S14	W32	.532		8.4	16	SB	3	C		40		
RAMY	10	1911	1915	1922	S17	W28	.485		8.7	11	SN	2	C		25		
HOLL	10	2159	2209	2230	N20	E77	.986		16.7	31	SN	3	C		0		
HOLL	10	2254	2255	2300	N20	E76	.983		16.7	6	SN	3	C		17		
HOLL	11	0001	0011	0037	S14	W35	.574		8.4	36	SB	3	C		48		
MANI	11	0009E	0015U	0040	S14	W34	.560		8.5	31D	SN	2	C		50		F
MANI	11	0526E	0531	0536	S31	E26	.559		13.2	10D	SB	3	C		30		
MANI	11	0700E	0708	0732	N19	E76	.983		17.0	32D	SB	3	C		70		
HTPR	11	0736E		0830	N12	E72	.962	15877	16.7	54D	1N		C	0736	160		EK
HTPR	11	0835	0836	0840	S17	W34	.568		8.8	5	SF		C	0836	30	.4	E
HTPR	11	1021E		1040	S24	E18	.408		12.8	19D	SN		C	1032	50	.6	E
HTPR	11	1036	1040	1115	S19	W78	.972	15856	5.6	39	1B		C	1040	120		EFK
HTPR	11	1057	1058	1109	N20	E58	.893		15.8	12	SN		C	1058	90	1.7	
HTPR	11	1319E		1323	S18	E39	.635		14.5	4D	SF		C	1319	10	.1	
HTPR	11	1515E		1535	N10	E70	.950		16.9	20D	SF		C	1520	30	.8	
HTPR	11	1554		1634D	S15	W05	.160	15865	11.3	40D	2N		C	1613	550	5.7	EIU
HOLL	11	1557	1605	1751	S14	W 5	.145	15865	11.3	114	1B	3	C		429		U F
BIGB	11	1558	1640	1802	S16	W04	.167	15865	11.4	124	1N		C	1640	200	2.1	
HTPR	11	1558	1601	1608	S18	W40	.648		8.7	10	SF		C	1601	20	.3	E
HOLL	11	1600	1600	1611	S19	W39	.638		8.7	11	SB	3	C		35		F
BIGB	11	1652	1705	1723	N15	E65	.928		16.6	31	SN		C	1705	40	1.0	E
HOLL	11	1703	1708	1723	N16	E70	.957		17.0	20	SN	3	C		0		
HOLL	11	1728	1748	1749	S26	E12	.374		12.6	21	SN	3	C		34		
HOLL	11	2020	2024	2035	S19	W40	.650		8.8	15	SB	3	C		72		
HOLL	11	2034	2043	2048	N15	E43	.744		15.1	14	SN	3	C		22		
HOLL	11	2135	2148	2155	N15	E42	.734		15.0	20	SB	3	C		27		
MANI	12	0508E	0509	0512	N10	W15	.387		11.1	4D	SN	3	C		25		
HTPR	12	1100	1102	1108	N19	E68	.951		17.6	8	SF		C	1102	30	.7	E
KAND	12	1118E		1139	N23	W80	.994		6.5	21D	SN		C				
KAND	12	1147		1204	N09	E55	.840		16.6	17	SF		C		52	1.0	
RAMY	12	1148	1148	1223	N 7	E49	.776		16.2	35	SN	3	C		16		
HTPR	12	1251	1256	1303	S25	E03	.309		12.8	12	SB		C	1256	40	.4	EG
HTPR	12	1330	1335	1345	S14	W90	1.000		5.8	15	SF		C	1335	60		AE
HTPR	12	1427	1440	1452	N30	E57	.914		16.9	25	SF		C	1440	50	.9	
HOLL	12	1513	1513	1517	N20	W82	.996		6.5	4	SN	3	C		0		
HOLL	12	1513	1513	1517	N15	W66	.934		7.7	4	SN	3	C		0		
BIGB	12	1609	1619	1634	N22	W90	1.001		5.9	25	SF		C	1619	10		
RAMY	12	1619	1620	1641	N 9	W20	.434		11.2	22	SN	4	C		23		
HTPR	12	1636		1711D	S13	W21	.366		11.1	35D	SF		C	1708	40	.4	E
RAMY	12	1637	1644	1710D	S16	W15	.294		11.6	33D	SN	3	C		39		
MCMA	12	1705E	1732	1800D	S14	W18	.324	15865	11.4	55D	SN		C	1732	70	.8	E
HOLL	12	1724E	1727	1820	S13	W19	.335		11.3	56D	SB	4	C		125		FDE

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE MAR	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		CORD.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
BIGB	12	1803	1807	1818	S14	E90	1.000		19.5	15	SN		C	1807	30		
BIGB	12	1950	1957	2008	N20	E52	.847		16.7	18	SN		P	1957	20	.3	E
HCMA	12	1956	1957	2000D	N20	E51	.839	15877	16.7	4D	SF		C	1957	20	.4	E
HOLL	12	1957	1958	2004	N19	E52	.844		16.7	7	SB	4	C		29		
HOLL	12	2158	2158	2213	N 9	W23	.471		11.2	15	SB	3	C		21		
BIGB	12	2211	2217	2252	N19	E80	.993	15877	18.9	41	1N		C	2217	160		
HOLL	12	2212	2218	2252	N15	E73	.969	15877	18.4	40	1B	4	C		0		F
HOLL	12	2222	2224	2225	N19	E52	.844		16.8	3	SN	4	C		16		
HOLL	12	2223	2224	2229	N 6	E43	.706		16.2	6	SN	4	C		20		
HTPR	13	1056	1057	1108	N18	E20	.530		15.0	12	SF		C	1057	30	.3	EH
HTPR	13	1103	1107	1115	N12	E39	.685		16.4	12	SF		C	1107	30	.4	E
RAMY	13	1258	1333	1415	N 9	W32	.584		11.1	77	SB	3	C		110		U
RAMY	13	1258	1328	1331D	N 9	W32	.584		11.1	33D	SB	3	V		121		U
HTPR	13	1259	1300	1305	N16	E53	.842		17.5	6	SN		C	1300	70	1.1	
HTPR	13	1302	1327	1340	N11	W33	.609		11.1	38	SN		C	1327	50	.6	EK
KAND	13	1328	1331	1339D	S19	E85	.992		19.9	11D	SN		C				
KAND	13	1329	1333	1339D	N11	W31	.585		11.2	10D	SF		C		52	.7	
RAMY	13	1435	1436	1441	N19	E38	.716		16.5	6	SN	3	C		19		
HTPR	13	1500	1515	1540	S15	E90	.999		20.4	40	SF		C	1515	30		
RAMY	13	1515	1519	1529	S12	E81	.984		19.7	14	SF	3	C		15		
HOLL	13	1531	1537	1550	N16	E60	.897		18.1	19	SN	3	C		42		
RAMY	13	1609	1609	1613	N19	E37	.706		16.4	4	SN	3	C		18		
RAMY	13	1617	1618	1623	N19	E37	.706		16.5	6	SN	3	C		18		
HOLL	13	1709	1723	1754	N13	E37	.668		16.5	45	SB	3	C		82		U F
RAMY	13	1710	1718	1752	N16	E35	.665		16.3	42	SB	3	C		52		
HOLL	13	2039	2046	2109	N14	E56	.861		18.1	30	SB	3	C		79		
PALE	13	2126	2126	2130	S13	W35	.572		11.3	4	SN	2	C		23		
HOLL	13	2132	2138	2140D	N18	E16	.496		15.1	8D	SB	3	C		54		
PALE	13	2141	2146	2149	S13	W35	.572		11.3	8	SN	2	C		33		
PALE	13	2228	2229	2236	S13	W73	.950		8.5	8	SN	2	C		18		S
KAND	14	0804		0835	S27	E01	.339		14.4	31	SF		P				
KAND	14	0927		0948	N18	W85	.999		8.0	21	SN		C				
KAND	14	0953	1011	1106	N18	W85	.999		8.0	73	SN		C				
KAND	14	1152	1218	1239	S10	E90	1.000		21.2	47	SN		C				
KAND	14	1201		1231	N18	W85	.999		8.1	30	SN		C				
KAND	14	1228	1239	1303	N03	E90	1.000		21.3	35	SN		C				
KAND	14	1320	1322	1325	N06	E90	1.000		21.3	5	SB		C				
RAMY	14	1702	1717	1720	S26	W 4	.329		14.4	18	SN	3	C		46		
MITK	15	0337	0349	0410D	N20	E31	.654	15877	17.5	33D	1N		C	0349	270	3.7	E
MANI	15	0345E	0350	0405	N20	E24	.588		17.0	20D	SB	3	C		70		F U
ISTA	15	0630E		0645	S25	W12	.362		14.4	15D	SF						B
ISTA	15	0657	0740	0825D	N17	W05	.417	15874	14.9	88D	1B						F
MANI	15	0706E	0715U	0803D	N19	W 4	.446		15.0	57D	SB	3	C		150		FDE
MANI	15	0706E	0745U	0803D	N19	W 4	.446	15874	15.0	57D	1N	3	C		350		FDE
KAND	15	0707	0741	0838	N19	W05	.448		14.9	91	SN		P		104	1.2	
KAND	15	0821	0833	0852	S18	W90	.999		8.6	31	SB		C				
RAMY	15	1235	1236	1243	N18	W 4	.430		15.2	8	SN	3	C		22		
RAMY	15	1330	1331	1334	N18	W 4	.430		15.3	4	SN	3	C		25		
HCMA	15	1617E		1635	S13	E85	.994	15890	22.1	18D	SN		C	1620			D
HOLL	15	1623E	1623U	1646	S13	E82	.987		21.8	23D	SF	3	C		0		
HOLL	15	1938	1939	1946	N18	W 8	.444		15.2	8	SB	3	C		58		
HOLL	15	2215	2218	2225	S10	E53	.793		19.9	10	SB	3	C		27		
HOLL	15	2332	2340	2350	S13	W61	.868		11.4	18	SN	3	C		21		
HOLL	15	2350	2351	0017	N19	E31	.646		18.3	27	SN	3	C		25		
HOLL	16	0025	0029	0037	S10	E52	.782		19.9	12	SB	3	C		137		
MANI	16	0027E	0030	0035D	S10	E51	.771		19.8	8D	SB	3	C		80		
MITK	16	0510	0529	0700	N16	E22	.527	15877	17.9	110	1N		C	0529	390	4.8	E
MANI	16	0522E	0525	0610	N14	E20	.485		17.7	48D	SB	3	C		100		F U
HTPR	16	0807	0843	0910	N18	E14	.480		17.4	63	SN		C	0843	120	1.2	E
KAND	16	0816		0910	S26	W27	.528		14.3	54	SF		P				
ISTA	16	0820E		0900D	N16	E15	.462	15877	17.5	40D	1N						F
HTPR	16	0830	0836	0842	N20	W19	.544		14.9	12	SF		C	0836	30	.3	E
KAND	16	0830	0837	0849	N19	W18	.524		15.0	19	SN		P				
ISTA	16	0832E		0837D	N17	W23	.547	15877	14.6	5D	1N						GE
KAND	16	0839	0845	0910	N15	E18	.476		17.7	31	SF		P				
RAMY	16	1200E	1200U	1212	N18	W17	.504		15.2	12D	SN	3	C		31		
KAND	16	1245	1257	1306	N30	E90	1.002		23.3	21	SN		C				
RAMY	16	1309	1309	1316	N18	E27	.597		18.6	7	SN	3	C		28		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE MAR	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
RAMY	16	1411	1428	1507	N18	E27	.597	15877	18.6	56	1B	3	C		400		F
MCMA	16	1411	1427	1500	N21	E25	.607	15877	18.5	49	2B		C	1427	400	5.2	E
RAMY	16	1433	1434	1446	N18	E 9	.449		17.3	13	SB	3	C		39		F
RAMY	16	1439	1443	1515D	N19	W19	.532		15.2	36D	SB	3	C		157		F
MCMA	16	1440	1455	1700D	N19	W20	.541	15874	15.1	140D	1B		C	1455	200	2.5	EFG
RAMY	16	1532	1532	1537	N18	E27	.597		18.7	5	SN	3	C		22		
RAMY	16	2013	2014	2032	N18	E24	.567		18.6	19	SB	2	C		41		
HOLL	16	2014	2014	2028	N20	E21	.561		18.4	14	SB	3	C		40		U
PALE	16	2014	2014	2026	N20	E16	.521		18.0	12	SN	3	C		25		DE
HOLL	16	2032	2032	2039	N19	E23	.568		18.6	7	SN	3	C		20		
RAMY	16	2036	2036	2041	N18	E24	.567		18.7	5	SN	2	C		20		
HOLL	16	2311	2318	2357	S15	E64	.892		21.8	46	SN	3	C		75		
HOLL	16	2350	0002	0017	N19	W 0	.441		17.0	27	SF	3	C		19		
HOLL	17	1618	1623	1631	S14	E56	.823		21.9	13	SB	3	C		55		F
HOLL	17	1619	1621	1625	N40	W 3	.734		17.5	6	SN	3	C		19		
RAMY	17	1620	1621	1643	S16	E56	.823		21.9	23	SB	3	C		58		F
MCMA	17	1621	1625	1630	S13	E56	.823	15890	21.9	9	SF		C	1623	40	.7	E
RAMY	17	1647	1647	1657	N 5	E45	.726		21.1	10	SN	3	C		22		
MCMA	17	1801	1808	1825D	S25	W46	.736	15885	14.3	24D	SN		C	1808	50	.7	E
RAMY	17	1829E	1832	1834	N 6	E43	.705		21.0	5D	SN	2	C		27		
HOLL	17	2105	2106	2112	N 8	E39	.666		20.8	7	SN	3	C		18		
MITK	18	0413	0436	0454	N14	W08	.384	15877	17.6	41	1F		C	0436	360	4.0	E
ISTA	18	0635E		0650	S27	W38	.658		15.4	15D	SF						E
ISTA	18	0635		0710	S11	W47	.726		14.7	35	SF						E
ISTA	18	0730		0750	S13	W48	.738		14.7	20	SF						E
HOLL	18	1355	1426	1445	N40	W14	.753		17.5	50	SN	3	C		66		F
HOLL	18	1404	1405	1422	S11	E18	.312		19.9	18	SN	3	C		30		
HOLL	18	1418	1424	1425D	N 6	E32	.567	15877	21.0	7D	1B	3	V		402		ZDE
HOLL	18	1440	1443	1450	S28	W41	.695		15.5	10	SB	3	C		60		F
HOLL	18	1531	1543	1705	S25	W47	.746		15.1	94	SB	3	C		90		UDE
HOLL	18	1541	1541	1548	N 7	W17	.376		17.4	7	SN	4	C		24		F
MCMA	18	1607E		1655D	S24	W49	.764	15876	15.0	48D	1N		C	1607	175	2.8	F
HOLL	18	1615	1615	1627	S11	E17	.296		20.0	12	SN	4	C		23		
HOLL	18	1646	1650	1659	N 7	W17	.376		17.4	13	SB	4	C		39		
HOLL	18	1741	1741	1750	S15	E14	.273		19.8	9	SN	4	C		27		F
HOLL	18	1756	1811	1904	S16	E12	.254	15886	19.6	68	1N	4	C		206		UDE
PALE	18	1757	1759	1815	S15	E14	.273	15886	19.8	18	1B	3	C		194		U F
MCMA	18	1758E		1845D	S15	E12	.245	15886	19.6	47D	1B		C	1758	220	2.1	EL
HOLL	18	1852	1859	1908	N 6	E30	.540		21.0	16	SB	3	C		95		
PALE	18	1854	1855	1902	N 6	E29	.526		21.0	8	SN	3	C		34		DE
MCMA	18	1859E		1900D	N08	E28	.526	15887	20.9	1D	SF		P	1900	50	.6	E
HOLL	18	1945	1954	2003	N16	W 7	.409		18.3	18	SN	3	C		19		
HOLL	18	2014	2014	2017	N16	W 7	.409		18.3	3	SN	3	C		44		
HOLL	18	2031	2046	2052	S28	W44	.725		15.6	21	SB	3	C		33		U
HOLL	18	2049	2106	2130	N18	W 8	.443		18.3	41	SN	3	C		94		
HOLL	18	2049	2054	2130	N18	W 8	.443		18.3	41	SB	3	C		125		
HOLL	18	2234	2242	2250	N18	W10	.454		18.2	16	SB	3	C		30		
HOLL	18	2300	2313	2322	N16	W 9	.419		18.3	22	SN	3	C		56		DE
PALE	18	2300	2300	2308	N18	W 7	.439		18.4	8	SN	3	C		87		DE
HOLL	18	2300	2300	2322	N16	W 9	.419		18.3	22	SB	3	C		96		DE
MANI	18	2302E	2302U	2309D	N17	W 8	.429		18.4	7D	SN	2	C		70		DE
HOLL	18	2349	2352	2357	N16	W 9	.419		18.3	8	SN	3	C		27		
PALE	19	0052	0055	0140	N 6	E26	.486	15887	21.0	48	1B	3	C		207		DE
MANI	19	0053E	0102	0133	N 7	E25	.479	15887	20.9	40D	1N	3	C		200		F
MANI	19	0053E	0055	0133	N 7	E25	.479	15887	20.9	40D	1B	3	C		180		F
WEND	19	0944	0954	1012	S11	W10	.184	15886	18.7	28	1N		P		300	3.2	EG
HOLL	19	1516	1521	1541	S15	E 2	.142		19.8	25	SN	4	C		38		F
HOLL	19	1516	1531	1541	S15	E 2	.142		19.8	25	SF	4	C		23		F
RAMY	19	1654	1657	1745D	N 7	E15	.351	15887	20.8	51D	1B	3	C		300		UDE
RAMY	19	1803	1805	1822D	S27	W58	.851		15.4	19D	SN	2	C		20		
HOLL	19	1803	1804	1812	S28	W56	.837		15.6	9	SN	3	C		22		F
PALE	19	1804	1808	1816	S28	W59	.861		15.3	12	SN	3	C		18		DE
RAMY	19	1835	1837	1851	S 7	E10	.172		20.5	16	SN	-2	C		30		F
PALE	19	1836	1836	1843	S12	E10	.191		20.5	7	SN	3	C		42		FDE
PALE	19	2105E	2115	2121	S31	E74	.955		25.4	16D	SN	3	C		19		DE
MANI	19	2302E	2302U	2310	S13	E 0	.103		20.0	8D	SN	2	C		20		F
PALE	20	0311E	0319	0330	N 7	E10	.296	15887	20.9	19D	1N	3	C		163		DE
MANI	20	0318E	0318U	0327D	N 8	E 7	.286		20.7	9D	SN	3	C		80		

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE MAR	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COORD.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
KAND	20	1148	1156	1209	S30	E43	.724		23.7	21	SF		P				
HTPR	20	1242E		1243D	N07	E02	.245		20.7	1D	SB		C	1242	180	1.8	E
HTPR	20	1312E		1326D	N09	E02	.279		20.7	14D	SN		C	1315	50	.5	EI
HTPR	20	1313E		1324	N04	E02	.195		20.7	11D	SF		C	1316	30	.3	EI
HOLL	20	2031	2031	2058	S14	W10	.208		20.1	27	SB	3	C		86		F
PALE	20	2036E	2036U	2051	S13	W10	.199		20.1	15D	SN	2	C		44		DE
HOLL	20	2214	2218	2228	N 7	W 2	.245		20.8	14	SB	3	C		50		U F
MANI	21	0720E	0720U	0723D	N 8	W 7	.285		20.8	3D	SN	2	C		50		F
HTPR	21	0724E		0726D	N07	W07	.270		20.8	2D	SF		C	0725	30	.3	E
HTPR	21	1258	1307	1325	N07	W08	.278		20.9	27	1B		C	1307	240	2.4	ELU
HTPR	21	1341	1345	1350	N12	W37	.662		18.8	9	SF		C	1345	20	.2	E
HOLL	21	1548	1603	1615	N26	W63	.936		16.9	27	SN	3	C		0		
MCMA	21	2011E		2015	S17	W22	.402	15886	20.2	4D	SF		P	2011	30	.3	D
MCMA	21	2011E		2055D	N07	W13	.327	15887	20.9	44D	SN		C	2019	80	.8	E
MCMA	21	2057	2118	2155D	N07	W13	.327	15887	20.9	58D	1B		C	2118	200	2.1	FU
MANI	22	0100E	0103	0110D	N 5	E78	.981	15904	27.9	10D	1B	3	C		100		
PALE	22	0324	0326	0343D	N 7	W19	.400	15887	20.7	19D	2B	3	C		530		U
MITK	22	0325	0327	0355	N07	W20	.413	15887	20.6	30	1N		C	0327	440	5.0	FHZ
HTPR	22	0732	0740	0750	S15	W33	.549		19.8	18	SF		C	0740	60	.7	
HTPR	22	0804	0806	0825	N24	W04	.519		22.0	21	SF		C	0806	30	.3	E
HTPR	22	0840	0850	0901	S17	W30	.514		20.1	21	SF		C	0850	20	.2	
HTPR	22	0905	0907	0913	S15	W34	.563		19.8	8	SN		C	0907	50	.6	
HTPR	22	1149	1150	1210	S29	E42	.710		25.6	21	SF		C	1150	40	.7	EK
RAMY	22	1317	1341U	1458D	N 7	W28	.519	15887	20.5	101D	2B	2	C		539		Z U
MCMA	22	1338	1345	1700	N07	W26	.492	15887	20.6	202	1B		C	1345	250	2.9	EFU
HTPR	22	1339	1341	1403	N08	W25	.486	15887	20.7	24	1B		C	1340	240	2.6	U
HOLL	22	1356E	1400	1546	N 7	W24	.465	15887	20.8	110D	1B	3	C		376		U F
HOLL	22	1356E	1527	1546	N 7	W24	.465		20.8	110D	SN	3	C		95		U F
MCMA	22	1434	1435	1439	S30	E40	.695	15899	25.6	5	SF		C	1435	25	.4	DL
HOLL	22	1724	1725	1732	N 7	W26	.492		20.8	8	SB	3	C		21		
MCMA	22	1811	1813	1837	N08	E68	.936	15904	27.9	26	SB		C	1822	30	.9	EKL
MCMA	22	1811	1822	1837	N08	E68	.936	15904	27.9	26	SB		C				
BIGB	22	1812		1837	N06	E70	.946		28.0	25	SB		P	1824	60		
HOLL	22	1813	1820	1844	N 5	E62	.891		27.4	31	SB	3	C		113		DE
HOLL	22	1813	1831	1844	N 5	E62	.891		27.4	31	SF	3	C		44		DE
PALE	22	1819	1820	1830	N 7	E65	.916		27.6	11	SB	3	C		63		DE
MCMA	22	1848	1858	1925	N27	W10	.578	15893	22.0	37	SF		C	1858	90	1.1	E
HOLL	22	1849	1855	1907	N24	W 8	.529		22.2	18	SN	3	C		101		F
MCMA	22	1850	1855	1907	N27	W09	.575	15893	22.1	17	SF		C	1855	60	.8	E
MCMA	22	1852	1903	2000	N07	W28	.519	15887	20.7	68	SN		C	1903	100	1.2	EK
MCMA	22	1852	1931	2000	N07	W28	.519		20.7	68	SN		C				
PALE	22	1858	1901	1911	N 8	W26	.499		20.8	13	SN	3	C		31		F
HOLL	22	1858	1901	1916	N 7	W27	.505		20.8	18	SB	3	C		84		UDE
HOLL	22	1923	1931	1949	N 7	W24	.465		21.0	26	SB	3	C		86		U F
MCMA	22	1945E		2001D	N27	W10	.578	15893	22.1	16D	SF		C	2000	30	.4	E
HOLL	22	1957	1959	2009	N24	W 9	.533		22.2	12	SB	3	C		27		
HOLL	22	2043	2046	2050	N 7	W28	.519		20.8	7	SB	3	C		21		
HOLL	22	2134	2142	2146	N 7	W29	.532		20.7	12	SB	3	C		39		
MITK	23	0516	0518	0530	S15	W44	.693		19.9	14	SN		C	0518			E
BUCA	23	0635		0653	N08	E62	.896	15908	27.9	18	1B		C	0645	139	3.0	CE
HTPR	23	0640	0648	0658	N08	E60	.880	15904	27.8	18	1B		C	0648	160	3.2	E
HTPR	23	0641E		0648	N08	W39	.665		20.4	7D	SF		C	0642	100	1.3	BE
MITK	23	0647E		0701	N08	E63	.903	15908	28.0	14D	1N		C	0647	150	3.5	
KAND	23	0745E		0759	N07	W38	.648		20.5	14D	SN		P		67	.9	
KAND	23	0841	0842	0855	N40	W85	1.000		17.0	14	SN		C				
MCMA	23	1608	1609	1612D	N07	W47	.754	15887	20.1	4D	SN		C	1609	40	.6	E
HOLL	23	1609	1609	1622	N 8	W42	.700		20.5	13	SB	3	C		22		
HOLL	23	1727	1731	1808	N 7	W41	.685		20.7	41	SN	3	C		76		U
HOLL	23	1727	1746	1808	N 7	W41	.685		20.7	41	SB	3	C		90		U
HOLL	23	1728	1734	1741	S31	E22	.525		25.4	13	SB	3	C		95		
PALE	23	1734E	1734U	1745D	S31	E23	.534		25.5	11D	SN	2	C		28		
HOLL	23	1735	1750	1757	N 5	E49	.770		27.4	22	SB	3	C		46		
PALE	23	1745	1745	1820D	N 8	W43	.712		20.5	35D	SN	2	C		38		DE
HOLL	23	1904	1936	2015	N 8	W43	.712	15887	20.6	71	1B	3	C		238		U
HOLL	23	1904	1920	2015	N 8	W43	.712	15887	20.6	71	1B	3	C		268		U
PALE	23	1909	1922	2015D	N 8	W43	.712	15887	20.6	66D	1B	2	C		299		U F
PALE	23	1909	1910	1912D	N 8	W43	.712	15887	20.6	3D	1B	2	C		332		
HOLL	23	1933	1936	1942	S19	W43	.688		20.6	9	SN	3	C		27		
HOLL	23	2044	2047	2105	N 8	W44	.724		20.6	21	SB	3	C		115		FDE

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE MAR	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	23	2044	2057	2105	N 8	W44	.724		20.6	21	SN	3	C		47		FDE
HOLL	23	2206	2208	2212	S19	W44	.700		20.6	6	SB	3	C		23		
HOLL	23	2223	2229	2242	N 5	E46	.737	15904	27.4	19	1B	3	C		188		DE
PALE	23	2228E	2231U	2238	N 5	E46	.737		27.4	10D	SB	3	C		67		DE
HOLL	23	2316	2328	2340	N 8	W46	.746		20.5	24	SB	3	C		68		U F
PALE	23	2320	2321	2325	N 8	W46	.746		20.5	5	SN	3	C		29		DE
HOLL	24	0037	0039	0047	N 8	W46	.746		20.6	10	SB	3	C		47		FDE
MANI	24	0039E	0039U	0048D	N 8	W45	.735		20.7	9D	SB	2	C		50		F
PALE	24	0039	0039	0047D	N 8	W46	.746		20.6	8D	SN	3	C		47		DE
MANI	24	0112E	0114	0120	S14	W53	.793		20.1	8D	SB	2	C		90		
HTPR	24	0620E	0622	0630	S14	W59	.851		19.8	10D	SF		C	0622	30	.6	
HTPR	24	0721	0722	0755	N08	E49	.778		28.0	34	SB		C	0722	80	1.2	E
MANI	24	0724E	0724U	0728D	N 7	E46	.743		27.8	4D	SN	1	C		80		
HTPR	24	0905	0908	0919	N25	E90	1.001		31.1	14	SF		C	0908	30		
RAMY	24	1316	1318	1331	N 7	E33	.584		27.0	15	SB	3	C		167		
HTPR	24	1319E		1324D	N09	E35	.620		27.2	5D	SN		C	1319	90	1.1	E
RAMY	24	1442	1455	1510	N 8	W54	.828		20.6	28	SB	3	C		87		F
HOLL	24	1442	1509	1528	N 9	W57	.857		20.3	46	SN	3	C		64		U F
HOLL	24	1442	1456	1528	N 9	W57	.857		20.3	46	SB	3	C		126		U F
HOLL	24	1503	1512	1518	S19	W53	.797		20.7	15	SN	3	C		19		
RAMY	24	1531	1555	1609	S17	W52	.785		20.7	38	SB	3	C		36		
HOLL	24	1555	1558	1606	S19	W54	.807		20.6	11	SN	3	C		38		
HOLL	24	1734	1735	1742	N 5	E37	.627		27.5	8	SN	3	C		36		
HOLL	24	1740	1741	1746	N22	E73	.975		30.2	6	SF	3	C		13		
PALE	24	1748	1748	1753	S14	W64	.892		19.9	5	SN	3	C		13		DE
PALE	24	1824	1824	1849	S14	W64	.892		20.0	25	SN	3	C		14		DE
PALE	24	1859	1915	1919	S14	W65	.900		19.9	20	SN	3	C		37		DE
RAMY	24	1904	1909	1917	S17	W54	.805		20.7	13	SB	3	C		33		
PALE	24	1921	1921	1929	S14	W65	.900		19.9	8	SN	3	C		23		DE
RAMY	24	2027	2027	2033	S25	E60	.866		29.4	6	SF	3	C		21		
HOLL	24	2158	2200	2233	N 8	W60	.880		20.4	35	SB	3	C		51		U F
HOLL	24	2218	2219	2224	N 5	E34	.587		27.5	6	SN	3	C		26		F
HOLL	25	0030	0040	0058D	N 8	W60	.880		20.5	28D	SB	3	C		76		UDE
MANI	25	0040E	0040U	0055	N 7	W61	.886		20.5	15D	SB	2	C		70		F
HOLL	25	1410	1414	1435	S14	W50	.761		21.8	25	SB	3	C		68		F
RAMY	25	1412	1414	1432	S14	W51	.772		21.8	20	SB	3	C		58		
RAMY	25	1430	1432	1435	N 8	W67	.930		20.6	5	SB	3	C		20		
HOLL	25	1548	1548	1554	N 9	W70	.949		20.4	6	SB	3	C		27		
HOLL	25	1633	1650	1657D	N 9	E20	.430		27.2	24D	SB	3	C		87		F H
HOLL	25	1633	1636	1723	N 9	W71	.954		20.4	50	SN	3	C		28		F H
HOLL	25	1633	1650	1723	N 9	W71	.954		20.4	50	SB	3	C		87		F H
HOLL	25	1633	1636	1657D	N 9	E20	.430		27.2	24D	SN	3	C		199		F H
HOLL	25	1749	1751	1759	N 9	W72	.959		20.3	10	SB	3	C		23		DE
HOLL	25	1802	1803	1808	N 5	E23	.436		27.5	6	SB	3	C		96		FDE
HOLL	25	1802	1813	1903	N10	W77	.980	15887	20.0	61	1B	3	C		235		DE H
HOLL	25	1802	1815	1903	N10	W77	.980	15887	20.0	61	1B	3	C		254		DE H
RAMY	25	1819E	1821U	1829	N 7	W66	.922		20.8	10D	SB	3	C		75		
HOLL	25	1842	1843	1846	N 5	E23	.436		27.5	4	SN	3	C		34		F
PALE	25	1934	1935	1937	N 9	W69	.943		20.6	3	SN	3	C		19		F
PALE	25	1947	1949	1955	N 9	W69	.943		20.6	8	SN	3	C		28		F
HOLL	25	1947	1948	1956	N 9	W73	.963		20.3	9	SB	3	C		44		
RAMY	25	1947	1948	1954	N 7	W67	.929		20.8	7	SB	3	C		29		
RAMY	25	1948	1948	1953	N22	E61	.916		30.4	5	SN	3	C		20		
PALE	25	2018	2018	2025D	N 9	W69	.943		20.7	7D	SN	3	C		13		F
RAMY	25	2106	2106	2111D	S23	E45	.721		29.3	5D	SN	2	C		42		
HOLL	25	2118	2123	2124D	S24	E46	.734		29.3	6D	SB	3	C		70		F
PALE	25	2121	2123	2131	S25	E45	.727		29.3	10	SN	3	C		58		F
PALE	25	2241	2243	2247	N 9	W70	.949		20.7	6	SN	3	C		47		DE
PALE	26	0020E	0021	0024D	N 9	W71	.954		20.7	4D	SN	3	C		16		FDE
PALE	26	0123	0138	0150D	N 9	W72	.959	15887	20.7	27D	1N	3	C		225		FDE
PALE	26	0123	0149	0150D	N 9	W72	.959	15887	20.7	27D	1B	3	C		235		FDE
MANI	26	0318E	0319	0326	N 6	W81	.990		20.1	8D	SN	3	C		25		
MANI	26	0603E	0603U	0614D	S36	E25	.603		28.1	11D	SN	3	C		70		U
KAND	26	0646E		0648D	N07	W85	.997		19.9	2D	SN		P				
MANI	26	0750E	0751	0756	N 8	W85	.998		20.0	6D	SB	3	C		70		
RAMY	26	1150	1213	1243	N 5	W78	.981	15887	20.6	53	2B	3	C		0		DE
RAMY	26	1354	1408	1538	N 9	W68	.937	15887	21.5	104	1B	3	C		0		
RAMY	26	1354	1408	1410D	N 5	W79	.984	15887	20.7	16D	1B	3	V		0		
HOLL	26	1403	1504	1543	N 6	W75	.970		21.0	100	SB	3	C		0		DE

Hα SOLAR FLARES

MARCH 1979

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE MAR	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	26	1403	1408	1543	N 6	W75	.970	15887	21.0	100	1B	3	C		0		DE
MCMA	26	1456E		1543D	N08	W81	.991	15887	20.5	47D	1B		P	1456			
HOLL	26	1553	1554	1558	N 7	E11	.303		27.5	5	SN	3	C		36		
RAMY	26	1553	1553	1559	N 7	E11	.303		27.5	6	SN	3	C		38		
HOLL	26	1641	1641	1648	S30	W13	.441		25.7	7	SN	3	C		31		
RAMY	26	1641	1642	1650	S30	W12	.435		25.8	9	SN	3	C		23		
RAMY	26	1653	1655	1703	N 7	E 3	.245		26.9	10	SB	3	C		56		
HOLL	26	1721	1721	1833	S31	W14	.462		25.7	72	SB	3	C		58		
RAMY	26	1805	1809	1829	S30	W14	.448		25.7	24	SN	3	C		29		F
HOLL	26	1805	1806	1814	N 5	E10	.267		27.5	9	SN	3	C		34		
RAMY	26	1828	1829	1834	N 8	W82	.993		20.6	6	SB	3	C		0		
HOLL	26	1828	1829	1844	N 6	W79	.984		20.8	16	SB	3	C		0		DE
PALE	26	1939	1947	1951	N 9	W82	.993		20.7	12	SN	3	C		14		DE
HOLL	26	2002	2009	2023	N 6	W80	.987		20.8	21	SB	3	C		0		
PALE	26	2003	2013	2029	N 9	W83	.995	15887	20.6	26	1B	3	C		93		DE F
HOLL	26	2140	2143	2200	N 7	E13	.325		27.9	20	SB	3	C		35		
PALE	26	2141	2141	2143	N 6	E 7	.252		27.4	2	SN	3	C		32		DE
HITK	26	2355	2400	2422	N07	E11	.303		27.8	27	SB		C	2400			D
MANI	26	2358E	2359	0020	N 6	E10	.280		27.7	22D	SB	3	C		100		
PALE	27	0002E	0002U	0020D	N 7	E12	.313		27.9	18D	SB	3	C		108		F
HTPR	27	0716	0723	0730	S29	W22	.506		25.7	14	SF		C	0723	50	.6	E
HTPR	27	0902		0907D	S29	W23	.516		25.7	5D	SF		C	0905	40	.5	E
HTPR	27	1040	1043	1052	S29	W24	.526		25.6	12	SF		C	1043	30	.3	
HTPR	27	1124	1131	1149	S25	E80	.978	15918	2.5	25	1N		C	1131	250		E
RAMY	27	1125	1126	1200	S25	E71	.939		1.8	35	SB	3	C		34		
RAMY	27	1203	1204	1225	S30	W24	.535		25.7	22	SN	3	C		36		
HTPR	27	1220	1228	1250	N06	W10	.279		26.8	30	SF		C	1228	20	.2	
RAMY	27	1228	1231	1254	N33	E56	.916		31.7	26	SN	3	C		39		
RAMY	27	1409	1410	1413	S21	E54	.809		31.6	4	SN	3	C		26		
RAMY	27	1503	1505	1512	N33	E55	.911		31.8	9	SN	3	C		27		
RAMY	27	1617	1619	1625	N33	E54	.905		31.7	8	SN	3	C		29		
RAMY	27	1916	1918	1926	S26	E72	.945		2.2	10	SN	3	C		25		
RAMY	27	2026E	2033U	2038	N30	E52	.883		31.8	12D	SN	3	C		39		
HOLL	27	2357	0000	0004D	N 7	E11	.303		28.8	7D	SB	3	C		147		U F
HITK	28	0644	0647	0702D	N37	E55	.923	15915	1.4	18D	1N		C	0647	180		E
ISTA	29	0719	0727	0825	S30	E56	.842	15895	2.5	66	3B						K
HTPR	29	0720	0726	0820	S28	E50	.786	15918	2.1	60	1B		C	0726	150	2.3	EU
KAND	29	0722E	0731	0806	S30	E55	.834	15919	2.4	44D	1N		C		228	3.9	
MANI	29	0732	0733	0749D	S25	E52	.797	15918	2.2	17D	1B	3	V		200		Z U
KAND	29	0901	0903	0927	S22	E63	.887		3.1	26	SF		C		73	1.6	
KAND	29	1022	1027	1102	S25	E60	.866		2.9	40	SN		C		62	1.3	
HTPR	29	1105	1106	1116	S22	E56	.829		2.7	11	SF		C	1106	30	.4	E
KAND	29	1207	1213	1226	N09	W37	.644		26.7	19	SN		C		73	1.0	
HTPR	29	1256E		1303	N09	W35	.619		26.9	7D	SN		C	1257	40	.5	E
HOLL	29	1847	1850	1923	N32	E27	.725		31.8	36	SN	3	C		50		
HOLL	29	1953	1956	2007	S25	E46	.738		2.3	14	SB	3	C		19		F
KAND	30	0610	0613	0625	S26	E48	.761		2.9	15	SN		C		94	1.5	
KAND	30	0618	0623	0639	S02	W44	.696		27.0	21	SF		C		31	.5	
KAND	30	0631	0641	0705	S26	E48	.761		2.9	34	SN		C				
KAND	30	0643		0755	N27	E90	1.001		6.0	72	SN		C				
ISTA	30	0710E		0741	N17	E90	1.001	15923	6.0	31D	1N						
KAND	30	0735	0739	0805	N31	E22	.684		1.0	30	SN		C		104	1.5	
MANI	30	0736E	0738	0748	N32	E21	.689		31.9	12D	SB	3	V		30		
ISTA	30	0738E		0801D	N31	E21	.678	15915	31.9	23D	1N						F
ISTA	30	0750E		0807	N26	E03	.542	15921	30.6	17D	1B						E
KAND	30	0752	0753	0803	S26	E48	.761		2.9	11	SN		C				
KAND	30	0754	0756	0806	N27	E05	.559		30.7	12	SN		C		73	.9	
HTPR	30	0758E		0815	N27	E06	.561		30.8	17D	SN		C	0758	70	.8	E
HTPR	30	0840	0844	0910	S20	W40	.656		27.4	30	SF		C	0844	20	.3	E
KAND	30	0900	0902	0906	S28	E37	.656		2.1	6	SF		C		42	.6	
HTPR	30	0902	0904	0911	S26	E35	.623		2.0	9	SN		C	0904	50	.6	
KAND	30	1003	1011	1021	S28	W90	.999		23.7	18	SN		C				
KAND	30	1053	1059	1105	S25	W90	.999		23.7	12	SN		C				
KAND	30	1108	1109	1113D	N09	W50	.791		26.7	5D	SN		C		21	.3	
KAND	30	1234		1250	S34	W85	.991		24.1	16	SF		C				
KAND	30	1333	1340	1350	N27	E85	1.000		5.9	17	SN		C				
HOLL	30	1441	1459	1515	S27	E33	.607		2.1	34	SN	3	C		57		U F
HOLL	30	1441	1446	1515	S27	E33	.607		2.1	34	SB	3	C		64		U F

Hα SOLAR FLARES

MARCH 1979

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE MAR	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	30	1514	1516	1532	N32	E16	.663		31.8	18	SN	3	C		22		F
HOLL	30	1601	1603	1617	N 6	W44	.716		27.4	16	SB	3	C		116		
HOLL	30	1609	1618	1635	S25	E35	.618		2.3	26	SB	3	C		62		U F
HOLL	30	1738	1739	1746	N26	W 0	.540		30.7	8	SB	3	C		30		U
HOLL	30	1742	1747	1751	S25	E34	.606		2.3	9	SB	3	C		30		F
HOLL	30	1754	1757	1802	S25	E34	.606		2.3	8	SB	3	C		33		
HOLL	30	1800	1801	1806	N28	E77	.990		5.5	6	SF	3	C		0		
HOLL	30	1835	1836	1845	S25	E33	.595		2.2	10	SB	3	C		19		F
HOLL	30	2010	2011	2021	N32	E13	.651		31.8	11	SB	3	C		35		F
HOLL	30	2133	2135	2208	S25	E32	.583		2.3	35	SB	3	C		52		U
HOLL	30	2311	2313	0012	S25	E31	.571	15918	2.3	61	1B	3	C		399		U F
MANI	30	2320E	2320U	2350	S24	E37	.636	15918	2.7	30D	1B	3	C		350		F Z
HOLL	30	2335	2338	2339D	N26	W 2	.541		30.8	4D	SB	3	V		145		F
MANI	30	2337E	2339	2345	N26	W 5	.545		30.6	8D	SB	3	C		120		F
MANI	31	0043	0045	0048D	S24	E37	.636		2.8	5D	SN	3	C		80		F
MANI	31	0554	0558	0630	S25	E27	.525		2.3	36	SN	3	C		50		F
MANI	31	0556	0559	0602	S24	E34	.601		2.8	6	SN	3	V		50		F
ISTA	31	0833		1014	S27	E23	.498		2.1	101	SB						F
ISTA	31	0933		0938	S20	E29	.517		2.6	5	SF						E
ISTA	31	0957		1012	S25	E37	.641		3.2	15	SB						D
RAMY	31	1310	1311	1316	S16	E26	.456		2.5	6	SB	2	C		121		
RAMY	31	1310E	1311	1433	S23	E22	.450	15918	2.2	83D	1B	2	C		246		F
HOLL	31	1335E	1335U	1407	S32	E32	.631		3.0	32D	SN	3	C		90		F
RAMY	31	1523	1524	1545	S23	E22	.450		2.3	22	SB	2	C		65		
RAMY	31	1524	1525	1546	N 8	W54	.827		27.6	22	SB	2	C		87		
HOLL	31	1524	1525	1533	N10	W67	.932		26.6	9	SB	3	C		45		
HOLL	31	1524	1524	1528	S24	E23	.471		2.4	4	SB	3	C		30		
RAMY	31	1525	1528	1555	N26	W11	.564		30.8	30	SB	3	C		71		
RAMY	31	1549	1550	1611	N33	E 4	.640		1.0	22	SB	3	C		60		
HOLL	31	1559	1559	1624	S17	E43	.685		3.9	25	SN	3	C		19		
RAMY	31	1602	1603	1636	N26	W12	.568		30.8	34	SB	3	C		75		
RAMY	31	1656	1656	1703	N26	W12	.568		30.8	7	SN	3	C		57		
RAMY	31	1656	1706	1806	S23	E21	.439		2.3	70	SB	3	C		194		U F
HOLL	31	1700	1708	1743	S25	E21	.458		2.3	43	SB	3	C		171		U U
RAMY	31	1829	1831	1848	S15	E43	.682		4.0	19	SN	3	C		37		
PALE	31	1945	1950	2027	S24	E21	.448		2.4	42	SN	3	C		85		DE
RAMY	31	1950	2000	2037D	S24	E20	.437		2.3	47D	SB	3	C		60		U F
PALE	31	2034	2039	2045	S24	E21	.448		2.4	11	SN	3	C		42		F
BIGB	31	2203	2207	2221	S26	E25	.511		2.8	18	SN		C	2207	100	1.0	
BIGB	31	2304	2308	2324	S15	E43	.682	15920	4.2	20	1N		C	2308	150	2.0	
HOLL	31	2311	2313	0012	S25	E31	.572	15918	3.3	61	1B	3	C		399		U F
PALE	31	2317E	2322U	0013D	S24	E19	.426	15918	2.4	56D	2B	3	C		701		DE
BIGB	31	2318	2321	2321D	S25	E16	.406	15918	2.2	3D	1B		P	2321	450	4.8	
HOLL	31	2318	2321	2325D	S24	E19	.426	15918	2.4	7D	2B	3	V		783		U F
MANI	31	2320E	2322	2332D	S24	E19	.426	15918	2.4	12D	2B	3	V		650		F
HOLL	31	2335	2338	0001	N26	W 2	.540		31.8	26	SB	3	C		145		F

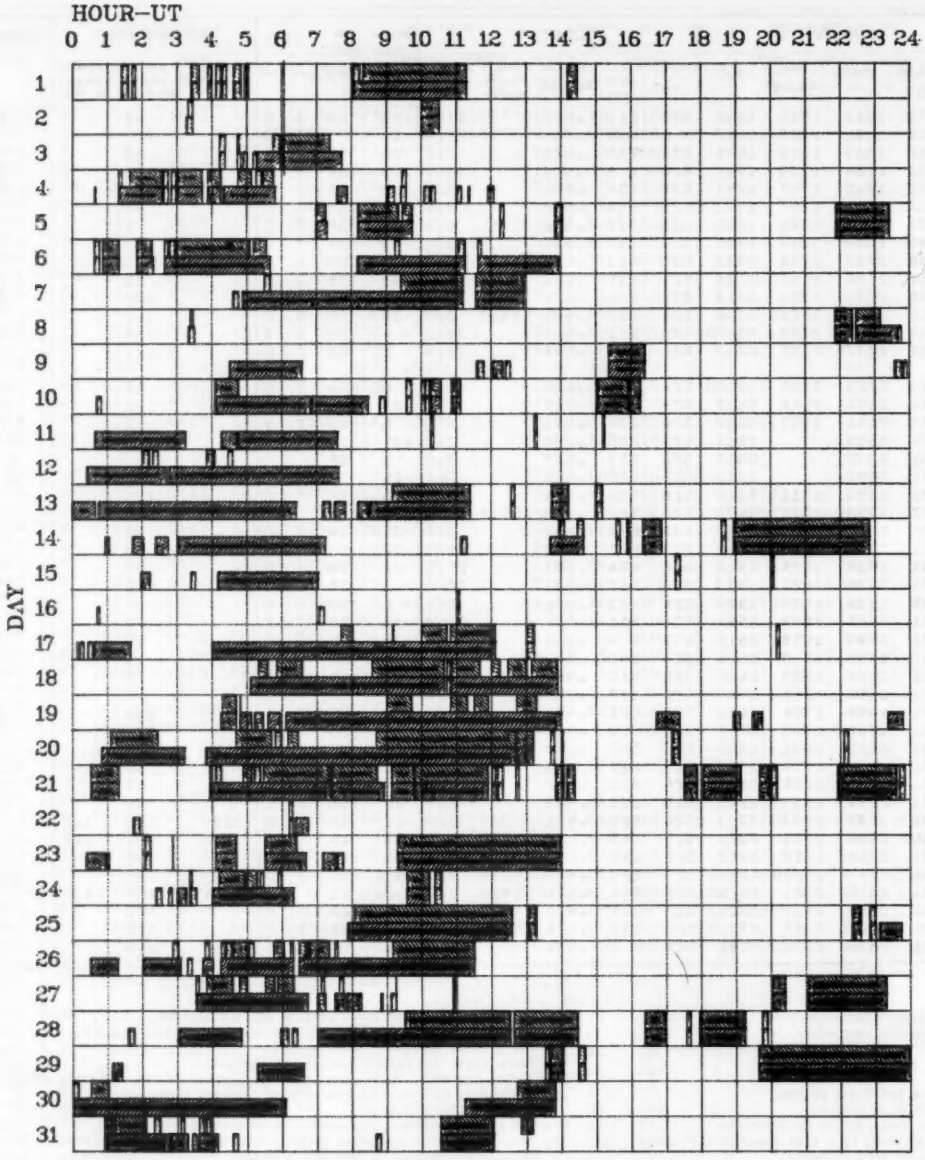
"Remarks":

A = Eruptive prominence whose base is less than 90° from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by a high speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H and K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα line suggests ejection of high velocity material.
S = Brightness follows disappearance of filament (same position).
T = Region active all day.
U = Two bright branches, parallel (||) or converging (Y).
V = Occurrence of an explosive phase: important and abrupt expansion in about a minute with or without important intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

MARCH 1979



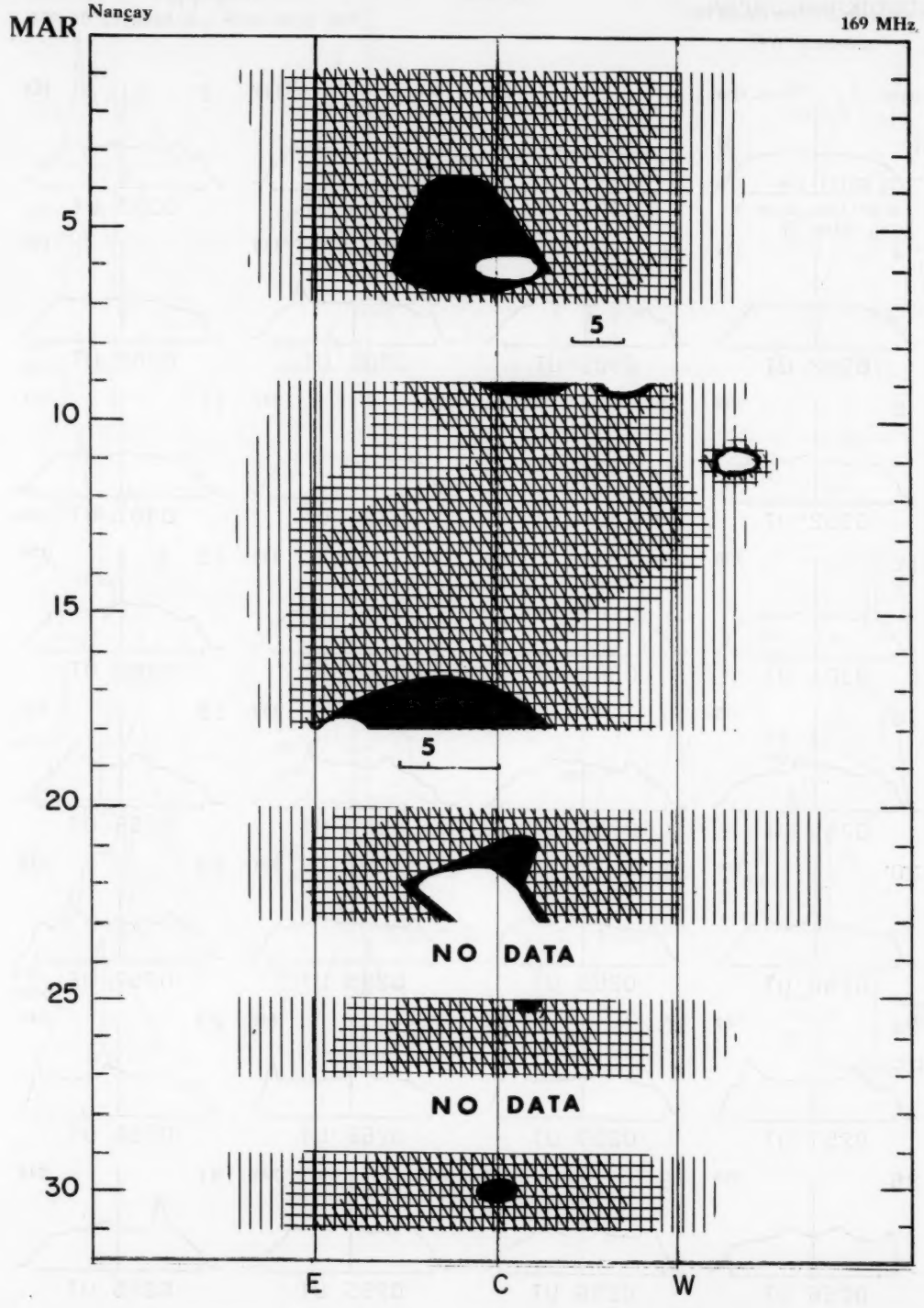
Observatories included in total patrol:

Big Bear	Holloman	Manila	Palehua	Upice
Bucharest	Istanboul	McMath-Hulbert	Ramey	Wendelstein
Haute Provence	Kandilli	Mitaka		

Times of no flare patrol are shown by the shaded area for each day, divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

MARCH 1979

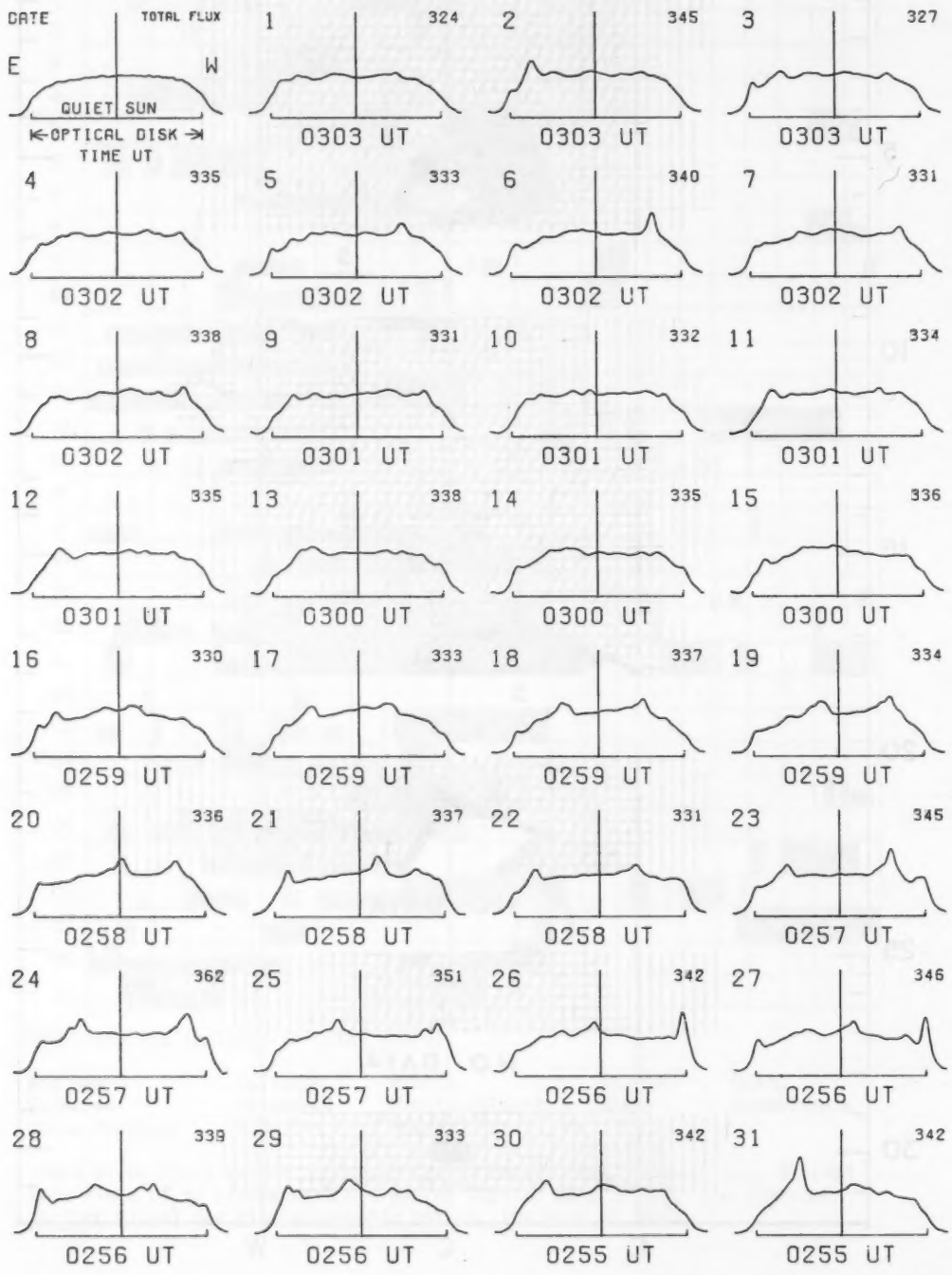


EAST-WEST SOLAR SCANS

MARCH 1979

TOYOKAWA, JAPAN

3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC

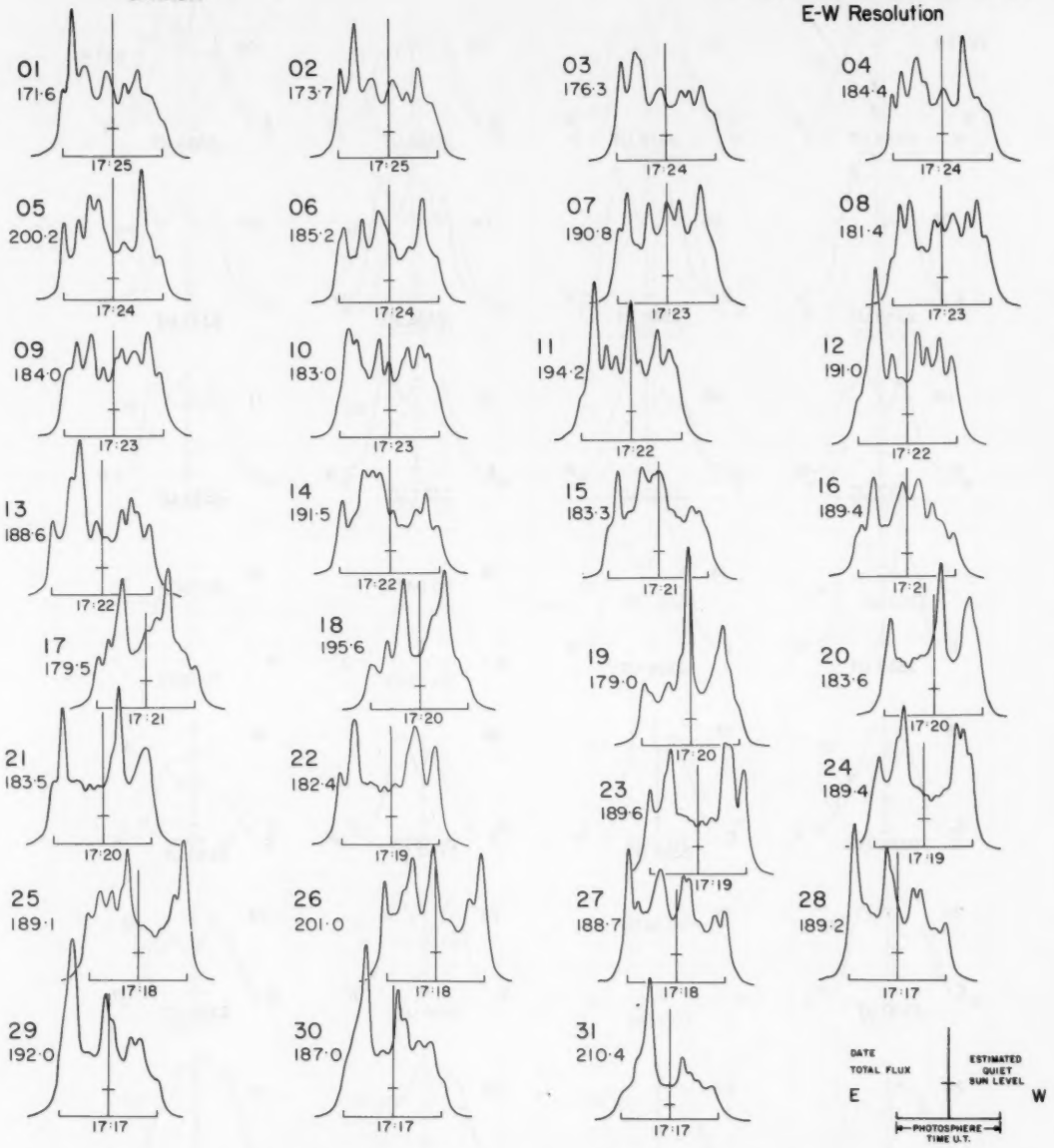


EAST-WEST SOLAR SCANS

MARCH 1979

ALGONQUIN RADIO OBSERVATORY
CANADA

10·7cm
Fan Beam with 1·5 minutes of arc
E-W Resolution



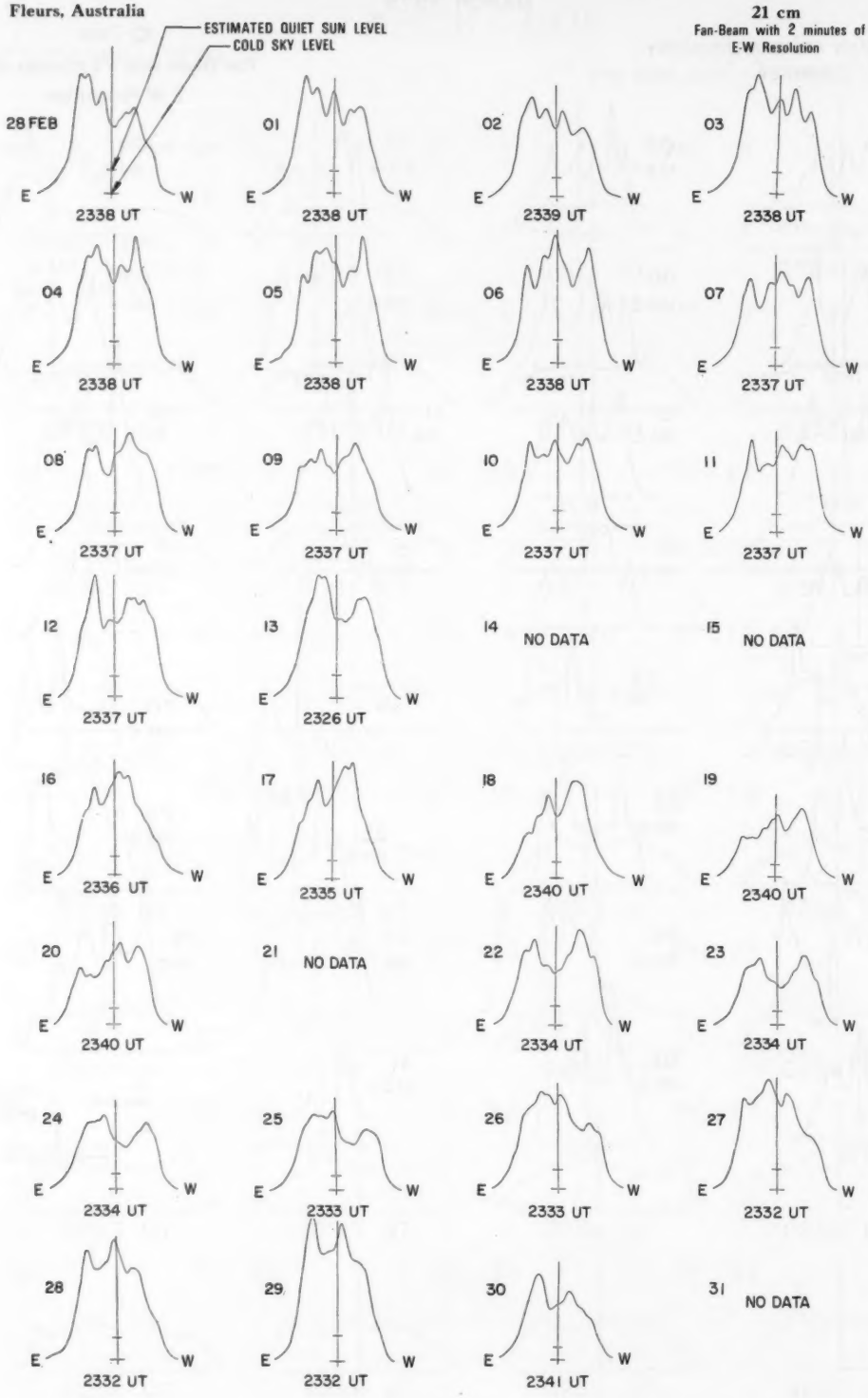
28
Mar 79

EAST-WEST SOLAR SCANS

MARCH 1979

Fleurs, Australia

21 cm
Fan-Beam with 2 minutes of arc
E-W Resolution

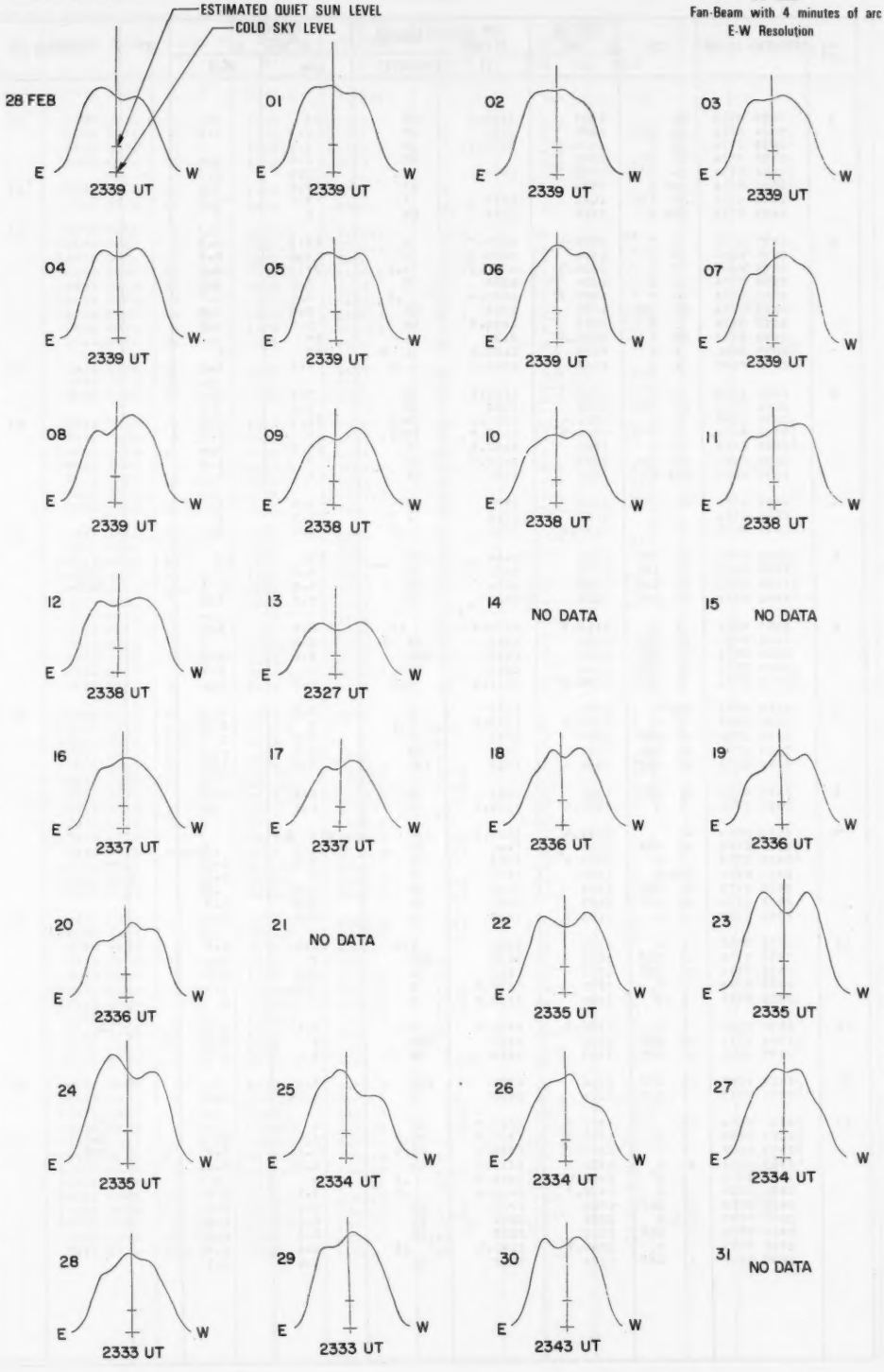


EAST-WEST SOLAR SCANS

MARCH 1979

Fleurs, Australia

43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MARCH 1979

MAR 1979	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
1	8400	BERN	46	0839	1015.1	285	770			8R
	2800	OTTA	21 GRF	1450	1512	45	2.8	1.4		
	2800	OTTA	40 F	1454.5	1456.5	12	8.2			
	2800	OTTA	27 RF	1550		57	2.6	2.4		
	2800	OTTA	24 R	1550	1553	3	2.6	1.3		
	2800	OTTA	24P R	1553		47	2.6			
	2800	OTTA	26 FAL	1640	1647	7	-2.6	-1.3		
	2800	OTTA	240 R	2015	2115	60	6	3		
2	2695	MANI	3 S	0020.4	0020.7	1	12.7	6.3		
	2695	PENT	3 S	0020	0020.3	1	11.6	5.8		
	2695	MANI	3 S	0336.9	0338.2	3.6	27.2	13.6		
	2800	OTTA	1 S	1334	1336	9	3.6	1.2		
	2800	OTTA	8 S	1605.2	1605.4	.3	5.4	2.7		
	2800	OTTA	20 GRF	1730	1745	55	2.4	1.6		
	2800	OTTA	1 S	2015	2016.5	10	1.6	.8		
	2800	OTTA	40 F	2125.8	2126	5	21			
	2695	BOUL	3 S	2126 E	2126.5	1 D	17	6		
	2695	PENT	8 S	2347	2347.2	.5	2.2	1.1		
3	2800	OTTA	1 S	1712	1715.5	8	2.8	1		
	2800	OTTA	21 GRF	1808	1820	95	7.2	3.4		
	2695	SGMR	3 S	1811.4	1823.1	16.6	22.9	6.9		
	8800	SGMR	3 S	1814.9	1822.7	13.1	19	5.7		
	2800	OTTA	3 S	1821	1822.8	5	10.8	5.4		
	2695	PENT	20 GRF	2000	2015.3	60	3	1.3		
	2695	PENT	240 R	2210	2255	45	4	2		
4	2800	OTTA	20 GRF	1510	1535	60	3.6	2		
	2800	OTTA	1 S	2209	2210	3	7.8	3		
	2695	PENT	8 S	2247.9	2248	.5	2.4	1		
5	2800	OTTA	21 GRF	1355	1444	485	26	13		
	8800	SGMR	20 GRF	1409	1432	39	8.6	3.4		SWF
	2695	SGMR	20 GRF	1409	1444	39	16.8	6.7		SWF
	2800	OTTA	20 GRF	1520	1526	40	5.8	2.9		
6	2695	PENT	8 S	0013.3	0013.7	.7	3.4	1.7		
	2800	OTTA	20 GRF	1440	1450	65 D	3.2			
	2800	OTTA	20 GRF	1720	1838	200	8.4	4.8		
	2800	OTTA	21 GRF	2140	2209	95	7	3.5		
	2800	OTTA	2 S/F	2206.3	2207.5	1.8	5.8	4.4		
7	2800	OTTA	240 R	1300	1303	3	3.8	1.9		
	2695	SGMR	1 S	1339.3	1339.4	1.1	1 U	0.3U		
	2800	OTTA	20 GRF	1528	1531	14	3.2	1		
	2800	OTTA	20 GRF	1552	1610	33	2.8	1.4		
	2800	OTTA	20 GRF	1635	1710	125	5.2	2.6		
8	2800	OTTA	21 GRF	1515	1530	40	2.8	1.4		
	2800	OTTA	1 S	1524.5	1525.5	3	1.6	.8		
9	8400	BERN	46	0940.4	1024.8	180	808 D			
	2800	OTTA	21 GRF	1440	1444	30	1.6	.8		
	2800	OTTA	1 S	1442.7	1443	1	3.6	1.8		
	2800	OTTA	240 R	1840	1847	7	3	1.5		
	2800	OTTA	20 GRF	2035	2100	35	1.6	.8		
	2800	OTTA	21 GRF	2135	2157	55	3.4	1.7		
	2800	OTTA	1 S	2146.5	2149	4	2.8	2.1		
10	2800	OTTA	1 S	1351	1352	1.5	2.4	1.2		
	2800	OTTA	20 GRF	1520	1645	125	2	1		
	2800	OTTA	20 GRF	1750	1810	50	2.4	1.4		
	2800	OTTA	1 S	2200	2200.3	2	2.6	1.4		
	2800	OTTA	1 S	2206	2206.2	2	2	1		
11	2695	MANI	1 S	0520.3	0521.7	1.1	5.1	1.7		IG
	2800	OTTA	22 GRF	1552	1603	350	15	7.5		
	2695	BOUL	20 GRF	1559 E	1619	65 D	16	5		
12	2695	PENT	23 GRF	2150	2220	120	3.4			
	2800	OTTA	4 S/F	2211	2212	2	11.2	3.7		
13	8400	BERN	23	1321.6	1327.2	32	21			OPR
	8800	SGMR	3 S	1322.8	1330.7	13.2	22.4	9		SWF
	2695	SGMR	3 S	1323.7	1330.7	12.3	24.8	9.9		SWF
	2800	OTTA	45 C	1324	1330.5	11	16.6	8.3		
	2800	OTTA	8 S	1429.9	1429.9	.1	4			
	2800	OTTA	8 S	1438.3	1438.4	.7	3.2	2.8		
	2800	OTTA	20 GRF	1700	1720	65	3.2	2.1		
	2695	PENT	240 R	2000	2015	15	2.6	1.3		
	2800	OTTA	21 GRF	2120	2127	30	2.2	1.8		
	2800	OTTA	8 S	2145.1	2145.5	.8	2.8	1.4		
	2695	PENT	21 GRF	2205	2212	40	2.6	1.3		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MARCH 1979

MAR 1979	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
	2800	OTTA	1 S	2212.5	2213.1	1	3.4	1.7		
14	2800	OTTA	21 GRF	1332	1338	31	4.2	2.1		
	2800	OTTA	1 S	1334.5	1336	3	5	2.5		
	2800	OTTA	8 S	1748.1	1748.1	.3	4.2			
	2800	OTTA	20 GRF	2110	2148	70	2.2	1.4		
15	2800	OTTA	20 GRF	1310	1330	35	3	1.5		
	2800	OTTA	20 GRF	1430	1445	80 D	3			
16	2695	PENT	4 S/F	0027.8	0028.5	1.2	23	10		
	2695	MANI	4 S/F	0027.8	0028.6	2.2	21.7	7.2		I
	2695	BCUL	3 S	0028 E	0029	2.5D	23	8		
	2695	SGMR	20 GRF	1420.3	1425.6	34.7	21.6	8.6		SWF
	2800	OTTA	21 GRF	1420	1445	275	12.4	6		
	8400	BERN	20	1422.3	1426.8	40	18			OPR
	8800	SGMR	20 GRF	1423.7	1431.7	21.3	25.2	10.1		SWF
	2800	OTTA	4 S/F	1424	1424.6	4	15.8	5.2		
	2800	OTTA	20 GRF	2000	2025	80	5	2.5		
17	2800	OTTA	20 GRF	1500	1535	30	3.8	2.5		
	2800	OTTA	20 GRF	1730	1806	70	3.8	1.5		
	2695	PENT	20 GRF	2150	2210	70	3.2	1.6		
18	2800	OTTA	4 S/F	1418.5	1424	13	20.4	10.2		
	2695	SGMR	3 S	1418.8	1423.9	12.2	29.9	12		
	2800	OTTA	21 GRF	1418	1445	210 D	12			SWF
	8800	SGMR	3 S	1419.5	1424.4	12.5	24.1	9.6		SWF
	2800	OTTA	23 GRF	1755	1805	80	4.4	2.8		
	2800	OTTA	2 S/F	1756	1757.7	3	5.6	2.4		
	2800	OTTA	26 FAL	2120	2140	20	-4.4	-2.2		
19	2800	OTTA	20 GRF	1230	1250	40	3.8	2.2		
	2800	OTTA	240 R	1430	1447	17	2.4	1.2		
	8400	BERN	46	1654	1656.8	16 D	228			18R
	2695	BCUL	45 C	1654	1658	10	235	79 U		
	2800	OTTA	46F C	1654	1657	14	220	73		
	2695	BOUL	4 SF	1659	1700	2 U	227	76 U		
	2800	OTTA	30 PBI	1708	1708	220	15.8			
	2800	OTTA	21 GRF	1834	1955	125	5	2.5		
	2800	OTTA	1 S	1835.9	1836	1	7	3.5		
	2800	OTTA	21 GRF	2100	2105	70	3.2	2.7		
	2800	OTTA	1 S	2109.4	2110.7	2.5	4.4	2.2		
	2695	PENT	26 FAL	2330	2405	35	-5.6	-2.8		
20	2800	OTTA	24 R	1225	1230	5	4	2		
	2800	OTTA	27A RF	1225		285	4	3.7		
	2800	OTTA	24P R	1230		250	4			
	2800	OTTA	23 GRF	1231	1237	65	5.4	2.7		
	2695	SGMR	20 GRF	1233.6	1235.2	26.4	11.6	5.8		
	8800	SGMR	20 GRF	1234.2	1255.6	25.8	15.1	7.5		
	2800	OTTA	1 S	1239.8	1240.4	1.5	5.4	2.7		
	2800	OTTA	26 FAL	1640	1710	30	-4	-2		
	2800	OTTA	1 S	1932	1932.8	1	1.8			
	2800	OTTA	1 S	2030.1	2030.5	1.5	2.4	1.4		
	2800	OTTA	240AR	2030	2031.8	1.8	2.4			
	2695	PENT	4 S/F	2308.5	2310	7	49	13		
	8800	MANI	4 S/F	2308.5	2310.2	3.4	99.2	33.1		
	2695	MANI	4 S/F	2308.5	2310.2	5.2	47.7	15.9		
21	8800	MANI	4 S/F	0244.3	0245.3	5.9	135.1	46		
	2695	MANI	4 S/F	0244.5	0245.3	8.6	133.4	44		
	8400	BERN	2	0714	0717.4	6	37			7R
	2800	OTTA	21 GRF	1248	1302	170	14.8			
	8400	BERN	3	1259	1307.4	34	76			14R
	2695	SGMR	3 S	1300.5	1307.8	12.9	44.9	13.5		
	8800	SGMR	3 S	1300.5	1307.2	18.5	70	21		
	2800	OTTA	4 S/F	1304.5	1307.5	10	32	12		
	2800	OTTA	21 GRF	2040	2120	250	15.8	7.9		
	2695	PENT	20 GRF	2242	2248	78	5.4	2.5		
	2695	BOUL	4 SF	2310 E	2311	3.5D	51	17		
22	2695	PENT	4 S/F	0059.5	0100.2	3	35	12		
	8800	MANI	4 S/F	0059.5	0101.2	5.6	76.6	25.6		
	2695	MANI	4 S/F	0059.7	0101.2	6.8	29.3	9.7		
	2695	MANI	4 S/F	0323.3	0327.4	7.5	64.9	21.6		
	8800	MANI	4 S/F	0324.8	0327.4	4	120.8	40.3		
	8400	BERN	23	1335.3	1340.6	46	67			15R
	2695	SGMR	3 S	1336.5	1340.8	13.8	122	36.6		SWF
	2800	OTTA	4 S/F	1336	1340.5	15	104	30		
	8800	SGMR	45 C	1338.3	1343.2		76.5			SWF
	8800	SGMR	45 C	1338.3	1340.3	13.1	91.6	30		SWF
	2695	BCUL	4 SF	1339.5E	1341.5	6 D	133	44		
	2800	CTTA	29 PBI	1351	1351	150	13.4	10.8		
	2800	OTTA	240 R	1705	1750	45	3.6	1.8		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS
MARCH 1979

MAR 1979	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
	8800	SGMR	3 S	1818	1819.3	4	305	91.4		SWF
	2695	SGMR	3 S	1818	1819.8	6	64	19.2		SWF
	2800	OTTA	4 S/F	1818.5	1819.1	5	92.4	28		
	2695	BCUL	45 C	1819.5E	1820.5	3 D	73	24		
	2800	OTTA	20 GRF	1835	2000	195	7.6	5		
	2695	MANI	4 S/F	2337.1	2340.3	5.4	13.4	4.5		
	2695	PENT	3 S	2339.5	2340.3	2.5	10.6	3.6		
	2695	BCUL	3 S	2341 E	2341.5	1 D	13	4		
23	8400	BERN	46	0640	0647.3	17	324			9R
	2695	MANI	4 S/F	0645.3	0647.5	7.3	202.1	67.4		
	8800	MANI	4 S/F	0645.3	0647.4	7.2	382.1	127.4		
	2800	OTTA	20 GRF	1740	1746	15	2.2	1.1		
	2800	OTTA	48 F	1900	1907	28	8			
	2800	OTTA	21 GRF	1935	2100	265	8.8	4.4		
	2800	OTTA	4 S/F	2044	2046.5	8	32.4	10.8		
	2695	BCUL	4 SF	2045 E	2048	5 D	30	10		
	2695	MANI	4 S/F	2225.9	2227.4	4.1	66.8	22.1		
	2695	PENT	4 S/F	2225	2227	7	72	18		
	8800	MANI	4 S/F	2226.3	2227.2	2.7	99.9	33.5		
	2695	BCUL	45 C	2226.5E	2228	3 D	64	21		
24	8400	BERN	4	0719.9	0721.1	8	266			4R
	2695	MANI	4 S/F	0720.2	0721.2	4.8	119.7	39.9		
	8800	MANI	4 S/F	0720.2	0721.2	4.8	318.6	106.2		
	8800	SGMR	1 S	1315.7	1316.6	7.3	5.8	1.7		
	2695	SGMR	3 S	1316.7	1317.3	1.5	55.5	16.7		
	2800	OTTA	21 GRF	1410	1450	230	11.4			
	8400	BERN	46	1440	1442.7	33	69			0
	8800	SGMR	45 C	1441.7	1442.5	10.3	125	38		5,SWF
	8800	SGMR	45 C	1441.7	1446.7		92			5,SWF
	2800	OTTA	2 S/F	1441	1446.8	9	9	4.9		
	2695	BCUL	20 GRF	1443 E	1448	15.5D	11	4		
	2800	OTTA	1 S	1721	1722	2	9.8	4.9		
	2695	PENT	2 S/F	2156	2159	6	5	2.5		
25	8800	MANI	4 S/F	0039.5	0040.9	8.8	252.8	84.3		
	2695	MANI	3 S	0040	0041.1	8.3	30.1	10		
	2695	PENT	45 C	0040	0041	8	32.6	17.6		
	2695	PENT	29 PBI	0048	0048	40 D	14			
	8400	BERN	3	1023.1	1024.4	8	27			0
	2800	OTTA	1 S	1632	1633.4	3	8.2	2.8		
	8800	SGMR	47 GB	1800.6	1808.8	15.2	776	233		SWF
	2800	OTTA	4 S/F	1802.2	1809	13.8	325	63		
	2800	OTTA	21 GRF	1802	1907	180	17.4	9.2		
	2695	SGMR	3 S	1803.3	1809.6	15.5	356	107		SWF
	2695	BCUL	45 C	1803.5E	1810	11.5D	362	121		
	2800	OTTA	29 PBI	1816	1816	14	9.8	3.2		
26	2695	MANI	3 S	0135.1	0136.7	4.2	42.4	14.1		
	8800	MANI	3 S	0135.9	0136.5	1.6	36.5	12.1		
	8400	BERN	3	0747.8	0748.4	4	27			OPR
	8800	SGMR	47 GB	1147.1	1151.8	29	247	219		SWF
	8800	SGMR	47 GB	1147.1	1211		729			SWF
	8400	BERN	46	1149.2	1152	50	163			4R
	8400	BERN	46	1149.2	1210.8	50	375			5R
	2695	SGMR	45 C	1150.2	1152.5	27	49	149		SWF
	2695	SGMR	45 C	1150.2	1211.5		496			SWF
	2800	OTTA	20 GRF	1405	1455	100	10.8	6		
	8400	BERN	28	1414	1427	86	33			OPR
	2800	OTTA	26 FAL	1645	1705	20	-2.8	-1.4		
	2800	OTTA	20 GRF	1715	1800	95	5	2.6		
	2695	PENT	26 FAL	1842	1908	16	-2.4	-1.8		
	2800	OTTA	21 GRF	2009	2040	55	3.6	1.8		
	2695	PENT	2 S/F	2013	2013.5	3	6	3		
	2800	OTTA	8 S	2109.8	2110	.5	2.8	1.4		
	2800	OTTA	1 S	2139.5	2141	3	4.4	2.4		
	2695	MANI	4 S/F	2357	2359.6	5.5	40.7	9		
	2695	PENT	45 C	2357.5	2400	5.3	40	11.2		
	2695	BCUL	45 C	2358 E	0000.5	4 D	36	12		
	8800	MANI	4 S/F	2359.3	2359.6	.8	55.3	18.4		
27	8800	MANI	4 S/F	0600.9	0607.6	10.5	266.2	156.6		
	2695	MANI	4 S/F	0601	0606.5	10.7	72.1	40.1		
	8400	BERN	4	0601 E	0607.4	14 D	85 D			
	2695	SGMR	3 S	1120	1123	15	58.8	17.6		3S
	8400	BERN	23	1120.6	1134.8	76	27			0
	8800	SGMR	3 S	1120.8	1122.4	14.5	20.8	6.2		3S
	2800	OTTA	240 R	1805	1930	85	3.6	1.8		
	2800	OTTA	20 GRF	2105	2155	100	2.6	1.3		
28	2800	OTTA	20 GRF	1240	1325	230	6.2	3.3		
	2800	OTTA	20 GRF	1720	1850	195	3.6	1.8		
	2695	PENT	20 GRF	2215	2255	135	3.4	1.7		
29	8400	BERN	20	0717	0735.7	85	33			0

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MARCH 1979

MAR 1979	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
	2800	OTTA	20 GRF	1230	1252	70	2.6	1.3		
	2800	OTTA	1 S	1848	1849	3	3.6	1.6		
	2800	OTTA	20 GRF	1950	2000	15	1.8	.9		
	2800	OTTA	20 GRF	2015	2022	25	3.6	1.8		
	2800	OTTA	20 GRF	2117	2122	20	1.8			
	2695	PENT	20 GRF	2300	2312	95	9.4	4.5		
30	2695	PENT	1 S	0038.5	0039.1	2	9.4	5.7		
	2695	MANI	4 S/F	0409	0410	2.7	12	4.1		
	8400	BERN	3	0734.7	0736.2	6	35			
	2800	OTTA	20 GRF	2100	2105	30	3.6	1.8		
	2695	PENT	3 S	2306	2313.7	14	73	36		
	2695	MANI	S/F	2307.4						
	2695	BCUL	4 SF	2309 E	2314.5	12 D	65	22		
	2695	PENT	29 PBI	2320	2320	110 D	21			
31	8400	BERN	3	0606.8	0608.3	14	22			
	8400	BERN	1	0835.5	0836	3	10			
	8400	BERN	3	0932.4	0937.7	10	11			
	8400	BERN	23	1100.4	1131.8	50	26			
	8400	BERN	1	1209.7	1210.1	1.5	12			
	2800	OTTA	21 GRF	1235	1256	90	9.4	6.8		
	8400	BERN	3	1305	1307.7	9	44			
	8800	SGMR	3 S	1306.8	1307.8	2.8	46.4	13.9		
	2695	SGMR	3 S	1307.7	1308.3	1.9	50.4	15.1		
	2800	OTTA	4 S/F	1307	1308	2	30	7.5		
	2695	BCUL	4 SF	1309 E	1309.5	1.5D	65	22 U		
	2800	OTTA	23 GRF	1505	1706	250	11.4	5.5		
	2800	OTTA	1 S	1513	1514	2	4	2		
	8400	BERN	23	1553.6	1555.1	6	10			
	2695	SGMR	20 GRF	1658.9	1715.1	35.1	3.5	1.7		
	8800	SGMR	45 C	1700	1737		15.6			
	8800	SGMR	45 C	1700	1715.5	53.1	12.3	7.8		
	2800	OTTA	20 GRF	1943	2013	110	8.6	4.3		
	2800	OTTA	3 S	2206	2207	2	37.6	9.4		
	2695	BCUL	4 SF	2207 E	2207.5	1 D	40	13		
	2800	OTTA	29 PBI	2208	2208	4	3.4	1.7		
	2695	PENT	21 GRF	2315	2421	100	8.6	4.3		
	2695	MANI	4 S/F	2318	2320.2U	1 D	158.4U	50 U		
	8800	MANI	4 S/F	2318	2320.2U	1 D	236.8U	70 U		
	2695	PENT	46F C	2318	2319.5	9	140	35		
	2695	BCUL	45 C	2319 E	2320	3.5D	184	61		

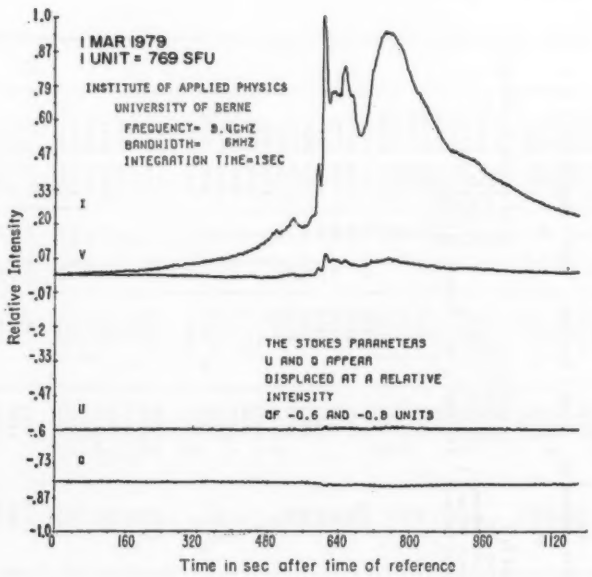
Observatories:

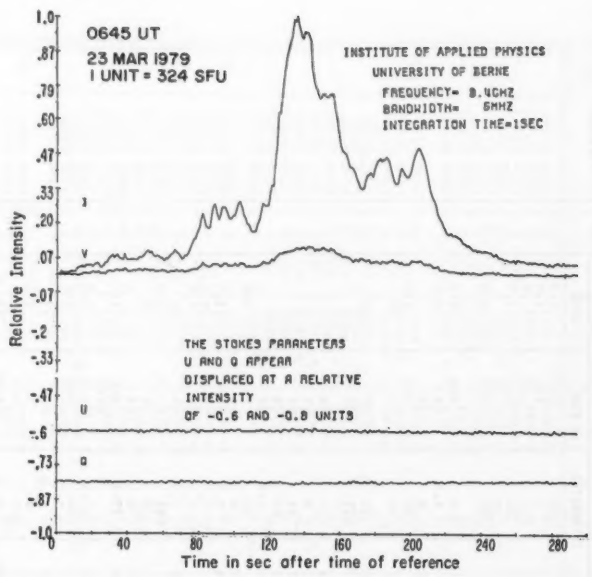
BERN = Berne BOUL = Boulder MANI = Manila OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill

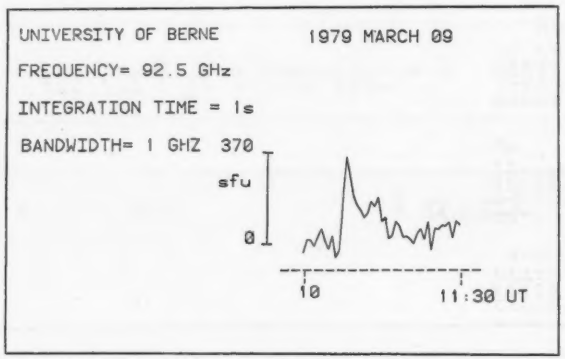
Explanation of Type Code:

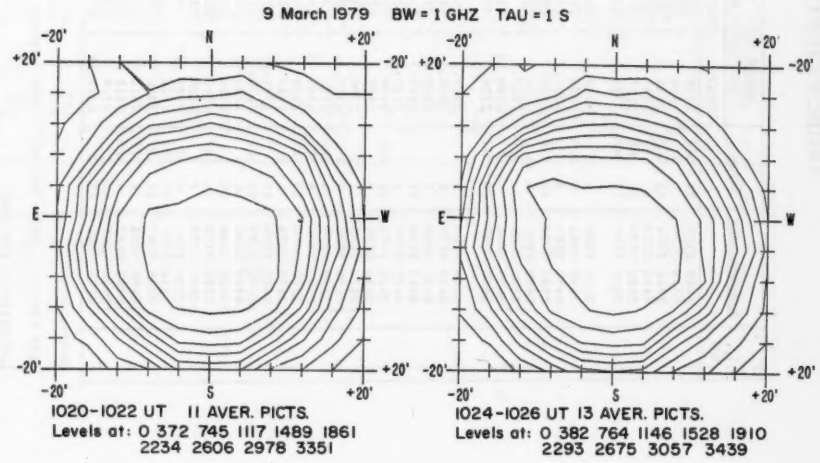
1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise Storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

SELECTED SOLAR NOISE BURSTS









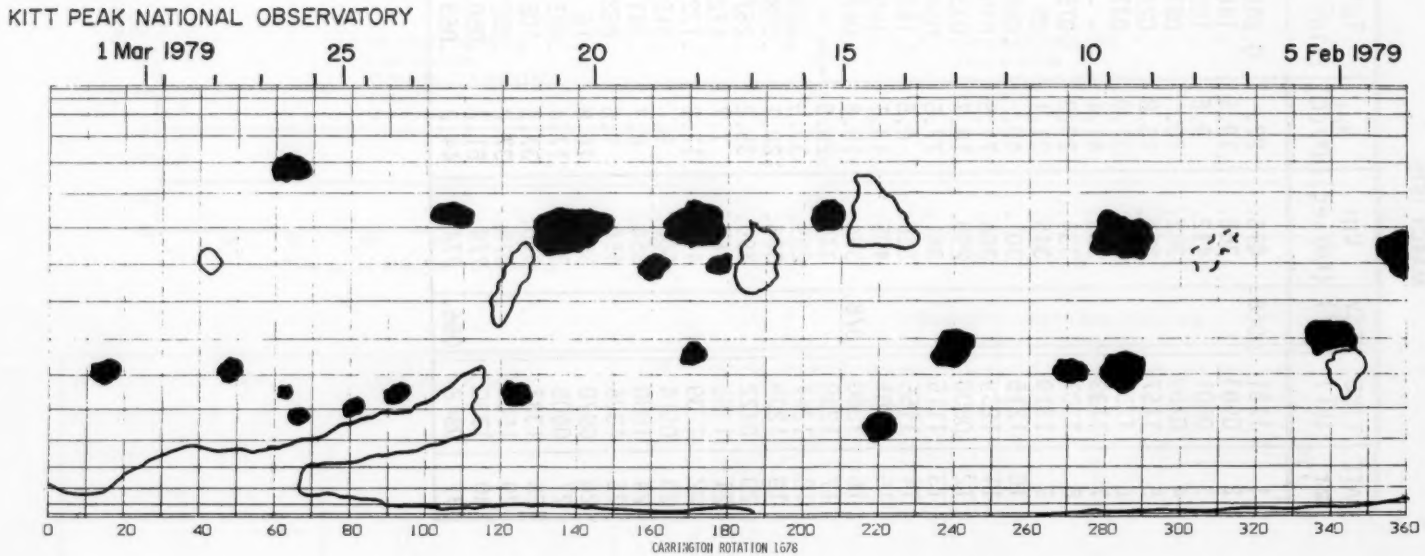
PIONEER XII

MARCH 1979

DATE Mar '79	TIME (UT)	ESV (°)	U_{H^+} (Km/sec)	N_{H^+} (H^+/CC)	T_{H^+} ($\times 10^6$°K)
1	1231	068.	416.	22.	0.285
2	0903		365.	19.5	.146
3	0801		412.	9.6	.103
4	0709		382.	10.	.081
5	1157		325.	15.8	.027
6	1253		315.	31.9	.037
7	1133		333.	41.4	- - - -
8	1301		334.	29.8	.075
9	1319		345.	21.1	.05
10	1215		301.	40.	.084
11	1239		306.	71.5	.019
12	0800		299.	18.7	.033
13	1115		381.	77.5	.056
14	1156		556.	6.6	.167
15	1201		405.	13.1	.109
16	1300	078.	394.	19.6	.067
17	1238		379.	20.9	- - - -
18	1244		299.	33.9	.035
19	1239		326.	120.1	.038
20	0122		390.	35.2	.267
21	1156		467.	7.7	.172
22	1239		418.	17.8	.122
23	0514		587.	9.	.318
24	1030		554.	8.7	.241
25	1326		456.	9.6	.252
26	0920		385.	16.8	.16
27	0605		369.	17.4	.035
28	1337		316.	37.5	.108
29	1502		275.	37.2	.032
30	1330		279.	51.7	.080
31	0842	086.	274.	44.2	.063

HELIUM 10830Å SYNOPTIC MAPS

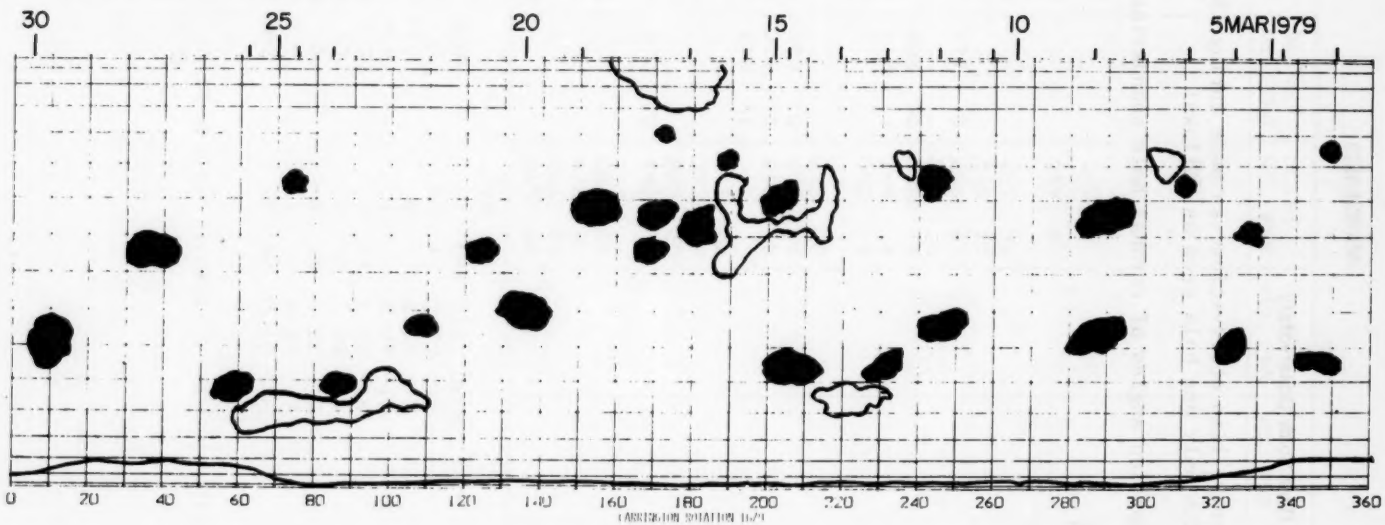
CARRINGTON ROTATION 1678



HELIUM 10830Å SYNOPTIC MAPS

CARRINGTON ROTATION 1679

KITT PEAK NATIONAL OBSERVATORY



CORONAL HOLES

Helium D3 Chromosphere at Solar Limb

MARCH 1979

Big Bear Solar Observatory

Only one D_3 limb observation was made during the month of March, 1979 with only one hole seen as follows:

Position angles of coronal hole boundaries (in degrees)

Date	South	
8 March	-167	163

SOLAR WIND

Interplanetary Scintillations

MARCH 1979

DAY	3C48 VEL	ERR	3C144 VEL	ERR	3C147 VEL	ERR	3C161 VEL	ERR	3C237 VEL	ERR	3C273 VEL	ERR	3C298 VEL	ERR	3C459 VEL	ERR
1	302	11	576	65			384	8					519	26		
2			321	7			342	21								
3	386	23											313	30		
4	449	17														
5	237	31														
6	354	22	312	77									306	29		
7													453	57		
8	405	5	330	29			359	53					499	36		
9	316	13	333	81												
10	424	10	330	38			451	32								
11	379	6	427	40			248	10					479	16		
13	385	8	338	17	277	8	286	67					448	15		
14	325	14	332	34			331	6								
15	340	32			286	30	308	7								
16	365	24	310	*	616	*	264	*								
17	367	50	434	24			382	4								
18	387	35	438	94												
19	543	31					393	38								
20	419	5	381	32	370	12	406	59								
21			442	10	319	25	248	5								
22	438	6	349	13	218	41										
23	398	55	382	47			433	26								
24	367	5	409	11			323	18								
25	277	6	368	6			325	20								
26	335	9	491	22	370	13	442	5								
27	358	4														
28	333	9	728	8			286	54								
29	323	5	393	56			478	33								
30							406	43								
31			374	68			369	62								

MARCH	5				15				25			
	UT	LAT	DIST	DLON	UT	LAT	DIST	DLON	UT	LAT	DIST	DLON
3C48	23.	9.	0.80	-33.	22.	15.	0.70	-40.	22.	23.	0.59	-46.
3C144	3.	-7.	1.09	-16.	2.	-7.	1.04	-17.	1.	-7.	0.99	-17.
3C147	2.	0.	1.09	-14.	1.	0.	1.05	-15.	1.	0.	1.01	-16.
3C161	4.	-14.	1.14	-13.	3.	-14.	1.10	-14.	3.	-15.	1.05	-15.
3C237	8.	-8.	1.29	-3.	7.	-8.	1.28	-6.	6.	-7.	1.26	-8.
3C273	10.	-6.	1.28	5.	9.	-5.	1.30	-2.	8.	-5.	1.30	0.
3C298	11.	-2.	1.22	9.	11.	-2.	1.25	7.	10.	-2.	1.27	5.
3C459	20.	48.	0.18	-66.	19.	62.	0.15	56.	19.	29.	0.27	68.

NOTE: * indicates data for which no error estimate is available since only two antennas were operating.

INFERRED IP MAGNETIC FIELD

BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1974	DEC 15				-	-	-		AT -		AT				AT	AT		AT		TA		TA		TA			*	
1975	1978 JAN 11		*	*					*		*	*						*			TA		- AT			-		-
1976	FEB 7						* TA					-				-						-		*		TA	A* TA	
1977	MAR 6	TA		-					AT			T*	*					TA			AT AT		AT	AT	* TA			
1978	APR 2							*	-		AT											AT AT						
1979	APR 29		TA		*		TA	AT AT	TA			-	-	T*						TA TA			AT					
1980	MAY 26				TA		AT	AT					-			AT	TA				-				-	-	-
1981	JUN 22	TA					A*						-	TA	TA TA		AT		*				*	AT	AT -		AT	
1982	JUL 19									TA							-	-		TA				AT	AT *		TA	
1983	AUG 15					TA			AT		AT AT			AT	TA						A*						TA
1984	SEP 11			TA		AT				TA	T*						A*		-				-			A* TA	-	
1985	OCT 8	*	TA		T*		AT				-	-	-						TA	TA -		AT		-				
1986	NOV 4		-				-	AT -	-		-	-						*	AT	-		AT	AT	AT	AT			
1987	DEC 1	AT	AT	-					-		-	TA	-	-	AT -	-	AT -	TA -	-	A*	-		*		-	AT -	-	
1988	DEC 28		-	-	-	-			-	AT *			TA	TA T*		-	AT -	-	TA			-	TA -			-	TA	-
1989	1979 JAN 24		-			*		TA			TA		TA							*					-		AT	
1990	FEB 20		TA	-	TA -		TA			-																		

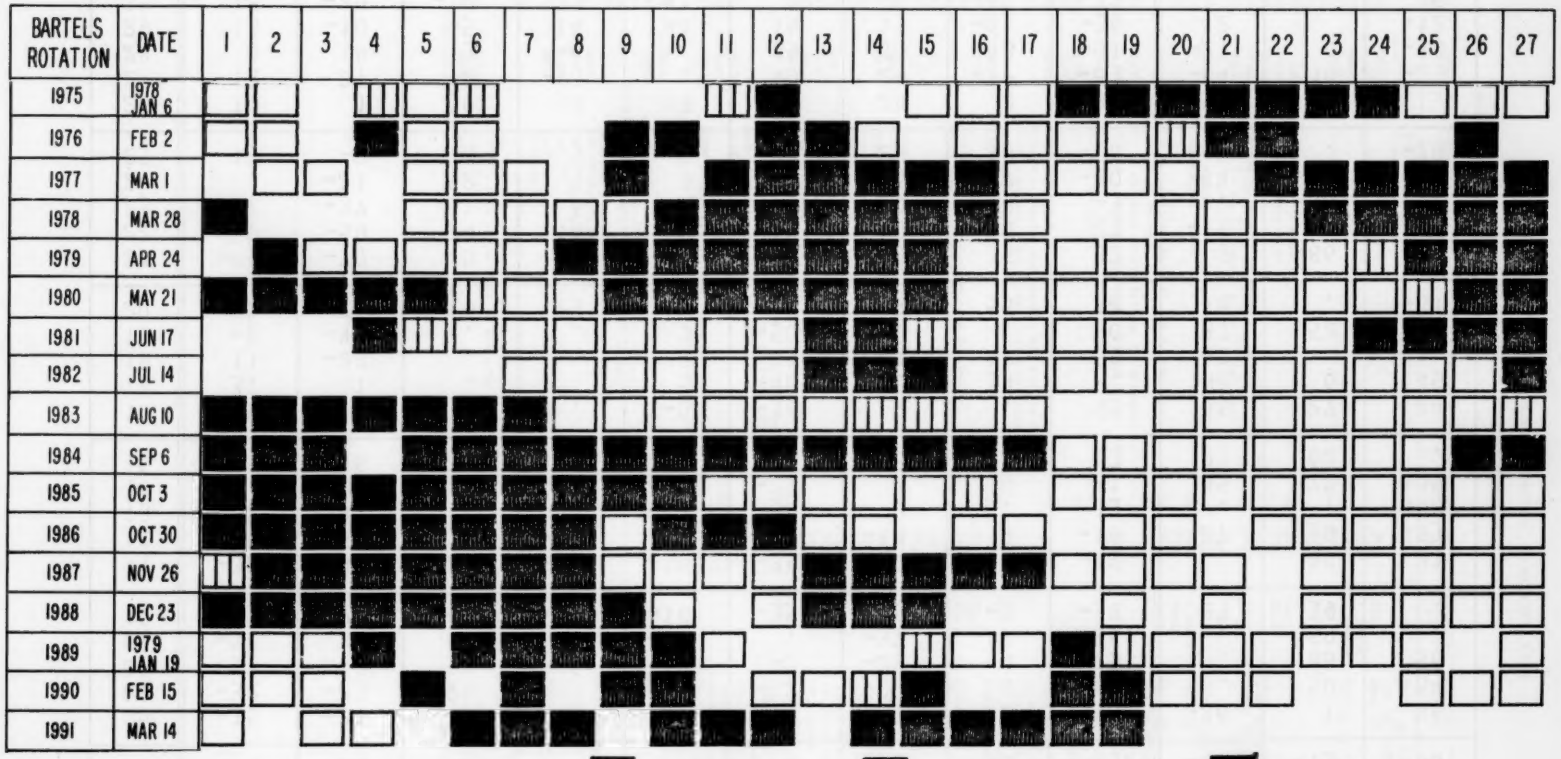
▒ = definitely towards the sun ▯ = definitely away from the sun

T = towards the sun A = away from the sun * = effect doubtful or not discernible - = missing data

The table shows daily inferences of the polarity of the interplanetary magnetic field. The first half of the day is based principally on magnetograms produced by the magnetometer at the Vostok Antarctic Station of the USSR. The magnetometer of the U.S. Air Weather Service now operated at Thule by the Danish Meteorological Institute is used for the second half of the day.

NOTE: Thule data not available at time of publication. March 1979 Thule and Vostok data will appear in the next issue.

STANFORD MEAN SOLAR MAGNETIC FIELD



POLARITY OF THE MEAN SOLAR MAGNETIC FIELD: □ = FIELD >2μT, ▥ = -2μT ≤FIELD ≤2μT, ■ = FIELD <-2μT

No box visible indicates no data available for that day.

Note: Data are taken daily at 2000 UT. Dates given are not Bartels Rotation dates. These earlier dates correspond to the occurrence of phenomena on the sun which affect the Earth during the given Bartels Rotation.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

1978 1979

DAY	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH
01	52	-12	-28	1	40	26	-11	-18	-72	11	.	-36
02	46	-34	-22	13	39	32	-20	-21	-39	.	-1	.
03	43	-27	-12	15	42	15	-14	-36	-7	15	30	.
04	13	-27	-5	18	39	18	-8	-28	17	-6	27	-24
05	4	-29	6	24	31	2	-3	-19	19	-25	-13	-6
06	-15	-27	5	43	29	-24	-7	-12	9	-26	1	46
07	-32	-23	21	42	30	-12	-20	3	5	.	50	64
08	-53	-12	33	36	17	-7	-29	-6	-15	.	88	56
09	-52	3	41	16	-11	.	-37	-17	-26	.	59	.
10	-41	24	40	-11	-10	-35	-29	-3	-37	27	39	.
11	-32	41	23	-17	-15	-34	-32	5	-19	.	40	21
12	-4	50	12	-12	-22	-42	-14	9	-16	27	30	63
13	22	47	8	-38	-33	-36	2	.	13	.	.	100
14	.	30	0	.	-43	-27	7	16	31	45	78	106
15	.	16	-24	.	-31	-26	8	20	43	21	62	.
16	58	5	-38	.	-9	-36	9	.	65	36	27	24
17	37	1	.	.	5	-48	5	34	.	48	6	45
18	11	-29	.	.	13	-44	-1	42	59	59	.	.
19	-9	-49	.	.	7	-50	.	.	30	37	-52	-56
20	-30	-75	-16	23	7	-33	4	55	18	18	.	-81
21	-49	-79	0	21	5	-21	3	35	32	9	-86	-81
22	-50	-59	24	16	4	-14	19	40	27	-15	.	.
23	-62	-37	51	6	-1	5	20	28	-3	.	-80	-51
24	.	-21	52	3	1	31	25	27	-20	-54	-52	-41
25	-13	-9	48	3	5	43	23	18	-26	-64	.	-28
26	10	1	30	-7	18	42	24	2	-32	-70	19	.
27	13	27	12	-13	.	40	29	-17	-63	-64	10	-29
28	6	14	3	-6	.	29	30	-48	-51	-27	0	-36
29	13	-10	-5	14	41	15	17	-61	-36	12		-12
30	18	-20	-10	27	41	2	-3	-65	-22	.		-26
31		-27		33	35		-16		-21	.		-28

DOT SYMBOL ENTRY INDICATES NO DATA AVAILABLE FOR THE DAY.

BOUNDER GEOMAGNETIC SUBSTORM LOG

MARCH 1979

DATE	ONSET TIME	DIRECTION	COMMENTS
01			0730-2110 UT, field unsettled with numerous minor SS.
	1040	West	
02	0455	East	Weak SS
	0550	East	
	1130	West	Strong SS
	1450		
	1540		
03	0700	≈ center	1st of double onset
	0740	≈ center	2nd of double onset
	1300	West	
04	0850	≈ center	Strong SS from Ft. Simpson eastward
	0925	West	Very strong SS Alaska, prior SS continues at other stations.
	1300	West	Slow onset
	1715		Slow onset
	2235		
05			Field unsettled 00-12 UT. No distinct SS except as follows.
	1010	West	SS in evidence Arctic Village to Talkeetna in Alaska. Strong response at College only. SS in evidence mid and low latitude stations from Boulder westward.
06	0235	East	Weak SS.
	0305	East	Weak SS.
	0630	East	
	0815		Positive impulse H-component mid and low latitude stations. Mag storm conditions through 1900 UT.
	0900	West	Strong SS
	0930	West	
	1050		Strong response at Lynn Lake and Back
	1255		Strong SS
	1640		
	1715		
07			Unsettled field through 0900 UT.
08	1145	West	
09	0145	East	Weak SS
	0805		Positive impulse H-component mid and low latitude stations.
	0920	West	1st of double onset
	0940	West	2nd of double onset
	1305	West	1st of double onset
	1325	West	2nd of double onset
10			Field at minor mag storm level much of the day. Strong ring current established after 2130 UT and persisting through 11/1800 UT.
11	0145	East	Weak SS
	0555	East	
	0955	West	Slow onset, beginning of numerous small injections making a continuous event through 1350 UT.
	1035	West	
	1130	West	
12	0345		Weak SS, localized Eskimo Pt. - Back
	0445		Weak SS, localized Eskimo Pt. - Back
	0535		Weak SS, localized Eskimo Pt. - Back
	0735	West	1st of double onset
	0755	West	2nd of double onset
13	0410	East	Weak SS
	0905	West	Weak SS
14			Quiet day
15	0555		Small positive impulse H-component all mid and low latitude stations. Field unsettled after 1300 UT with no distinct SS activity.
16	0940	West	Weak SS
	1050	West	Weak SS
17	0230		Small positive impulse H-component all mid and low latitude stations.
	0530	East	Weak SS
	0635	≈ center	
	0730	≈ center	Strong SS
	0955	West	
	1055	West	
	2230		
18	0525	East	
	0940	West	
	1400		Slow onset
19	0610	East	Field disturbed 0525-1815 UT. Numerous small SS.
	1325		
	1455		Slow onset
20	0600	≈ center	Weak SS
	0745	West	
21	0615	East	Weak SS
22	0827		Positive impulse H-component all mid and low latitude stations.
	1100	West	Moderate SS
	1430		Strong SS. Several injections maintain total SS through 1720 UT.
23			Field intermittently unsettled, no distinct SS activity.
24	0630		Slow onset. Repeating injections maintain total SS through 1000 UT. Field unsettled after 1800 UT with no distinct SS activity.
25			Field unsettled all day.
	0510	East	
	0825	West	Slow onset
	1035	West	Slow onset
	1300	West	Slow onset
	2150	East	Boulder in partial ring current sector
26	0225	East	
	0800	West	
	1155	West	1st of multiple onset
	1230	West	2nd of multiple onset
	1330	West	3rd of multiple onset
	1420	West	4th of multiple onset
	1615		Slow onset
	1655		
27	0605	East	
	1225		Weak SS
	1505		Strong SS with numerous minor injections. Final recovery from SS at 1830 UT.
28	0215		Positive impulse H-component all mid and low latitude stations
	0820		Positive impulse H-component all mid and low latitude stations. Onset of mag storm conditions lasting through 1845 UT.
	1035		Strong SS
	1320		
	1500		
	1600		
29			Mid and low latitude stations very active from Tucson - Boulder eastward until 0530 UT, when entire network went into mag storm conditions which lasted through 2130 UT. SS activity nearly continuous during mag storm.
30	0045	East	Very abrupt current reversal at Back-Lynn Lake - Island Lake; intense localized SS.
	0350	East	
	1250	West	Slow onset, weak SS
31			Field became active after 1235 UT. No distinct network SS activity.

SGD 416 Part I (Prompt)

FEBRUARY 1979 DATA

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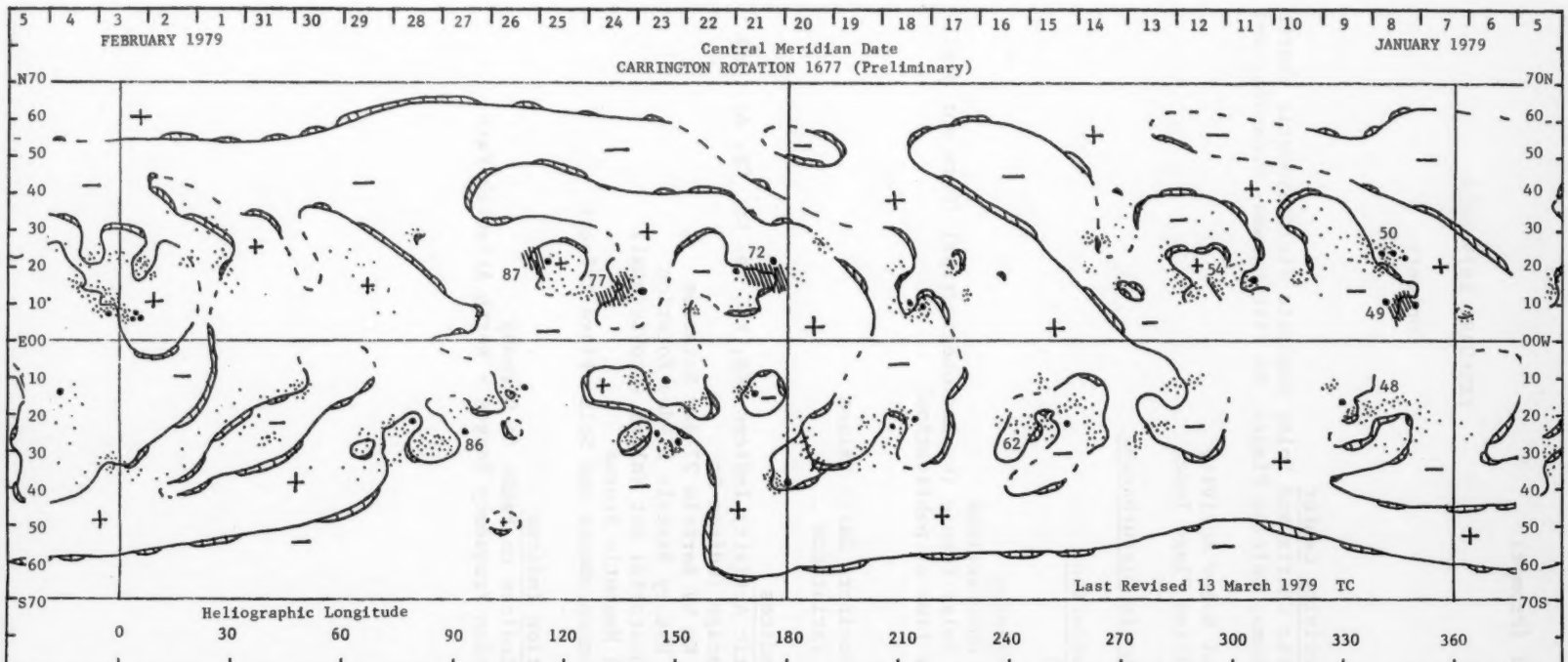
Hα SYNOPTIC CHART

CARRINGTON ROTATION 1677 (PRELIMINARY)

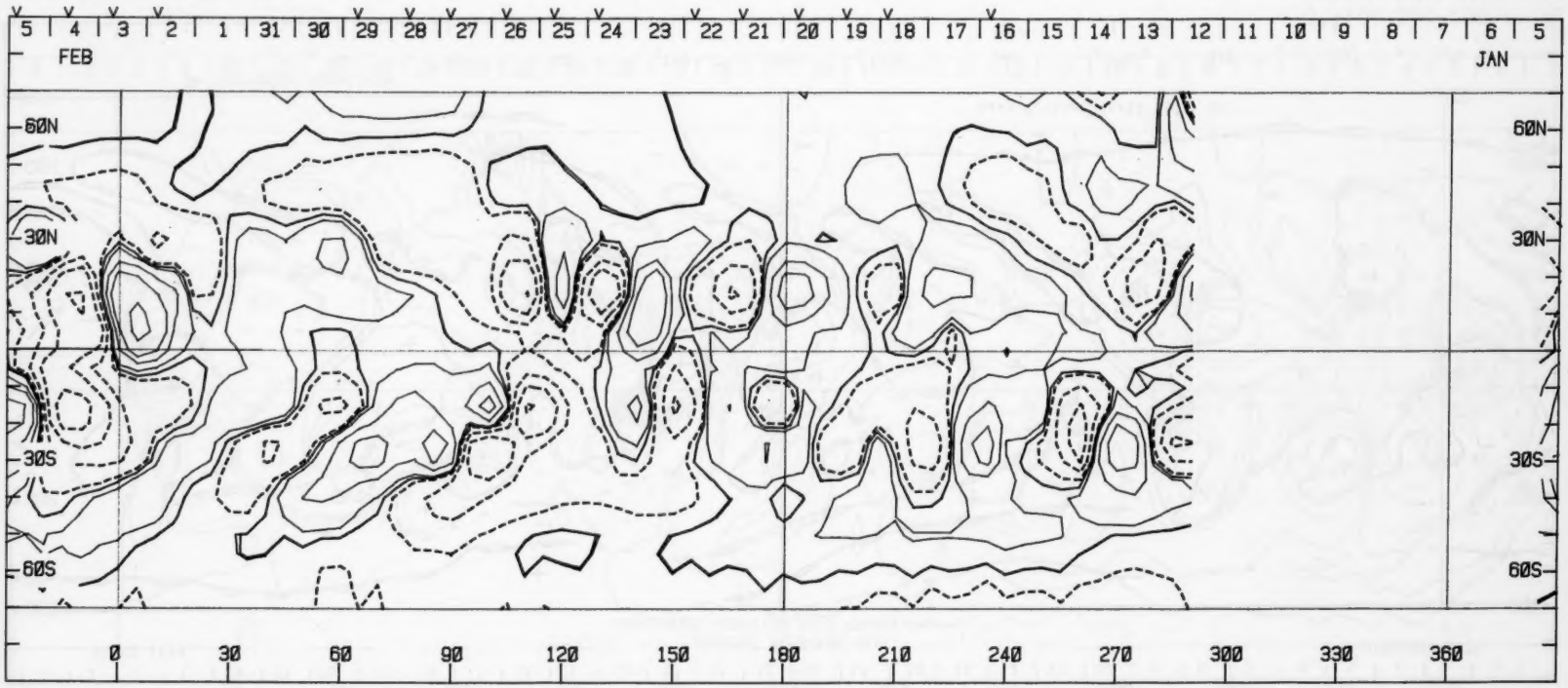


SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION 1677

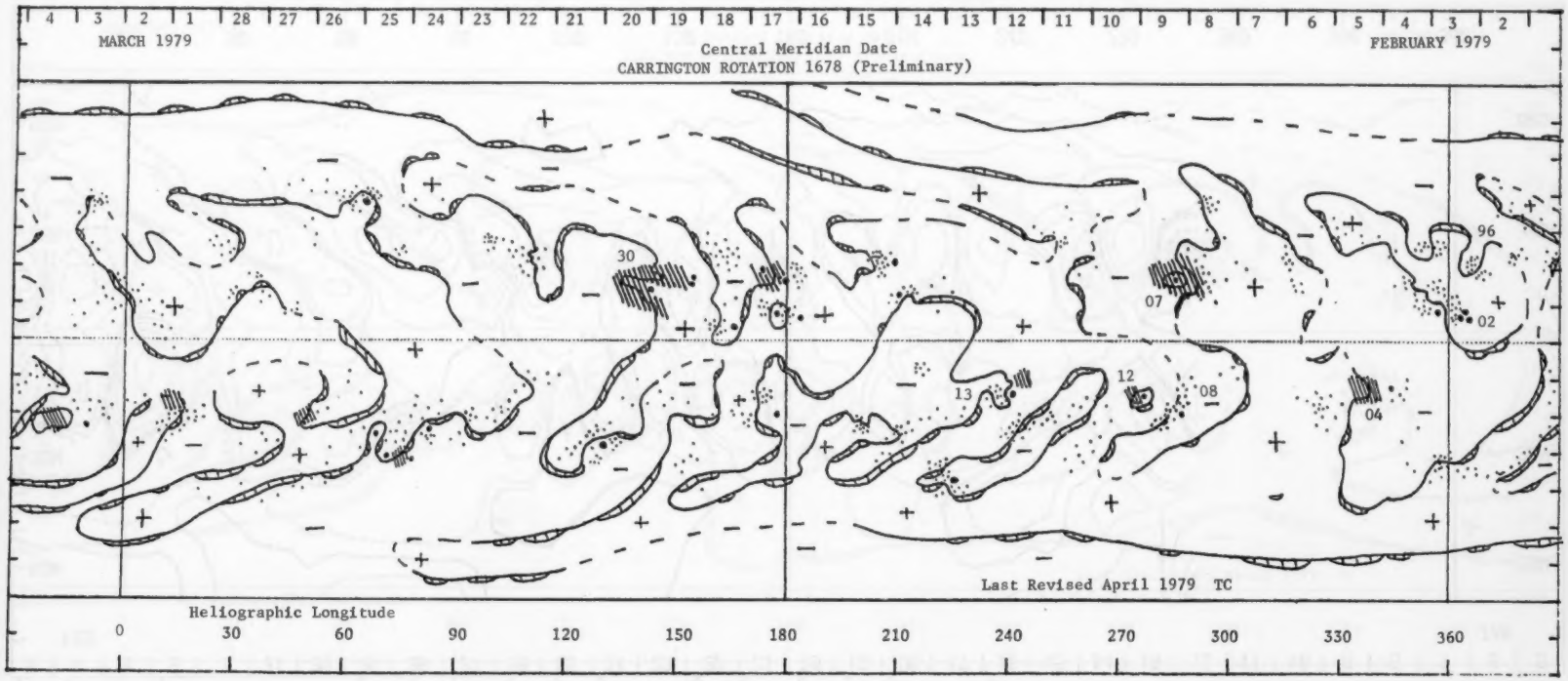
Stanford Solar Observatory

0,±100,200,500... μT



Hα SYNOPTIC CHART

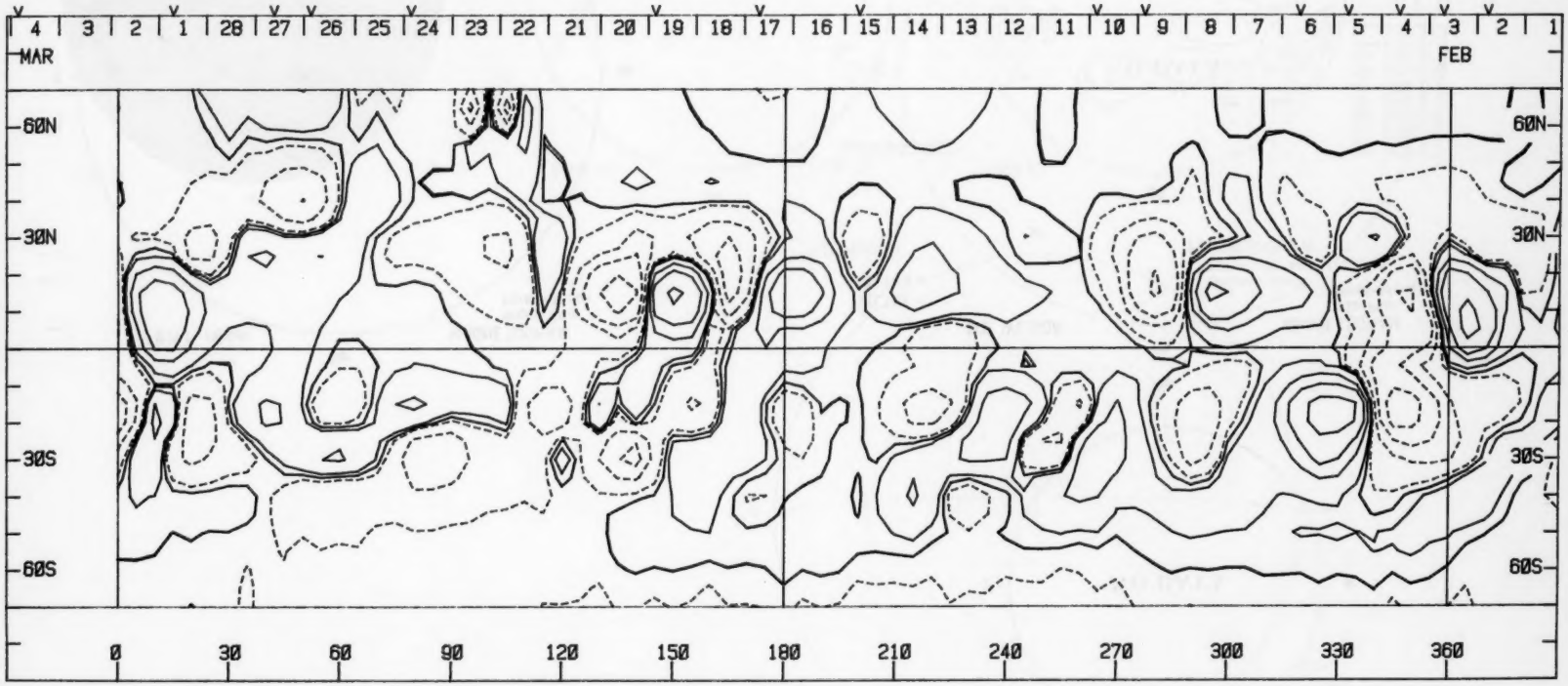
CARRINGTON ROTATION 1678 (PRELIMINARY)



SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1678

Stanford Solar Observatory

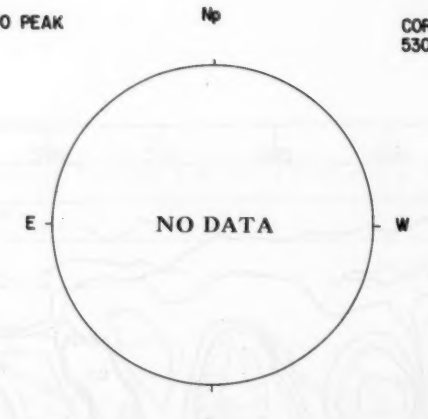
0, ±100, 200, 500... μT



FEBRUARY 1, 1979 (P=-11.97, B_o=-6.01, L_o=34.56)

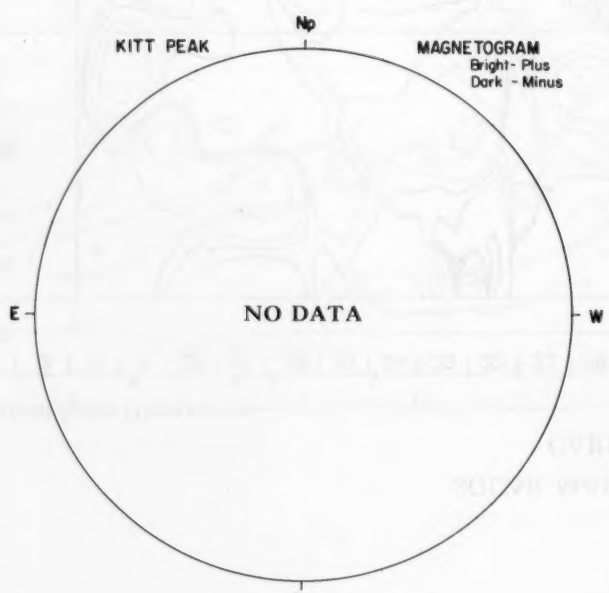
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

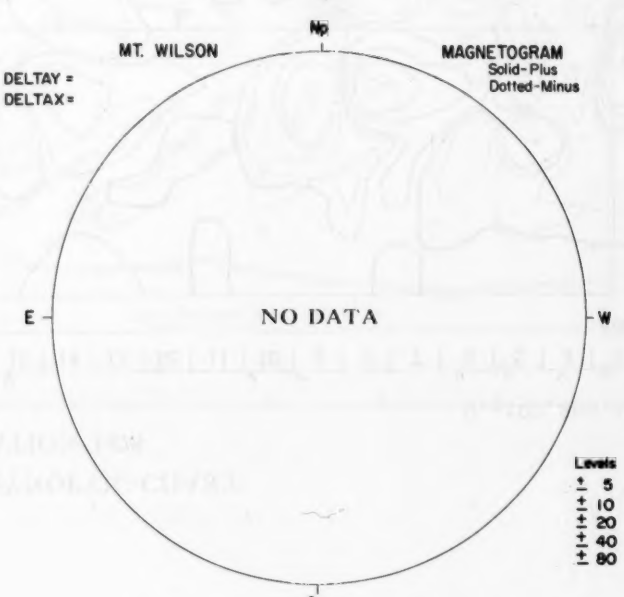
MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON

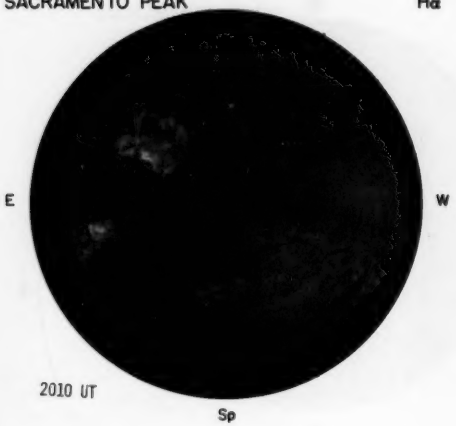
DELTAY =
DELTAX =

MAGNETOGRAM
Solid - Plus
Dotted - Minus



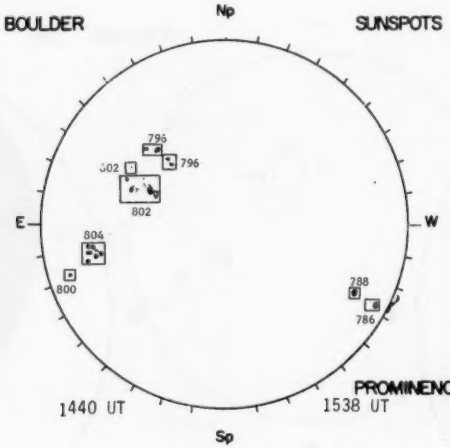
01

SACRAMENTO PEAK



2010 UT

Hα BOULDER SUNSPOTS

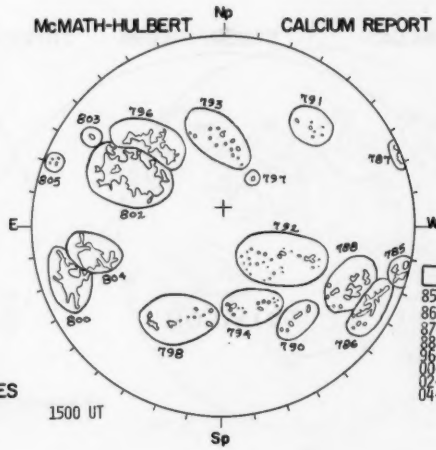


1440 UT

PROMINENCES

1538 UT

McMATH-HULBERT CALCIUM REPORT

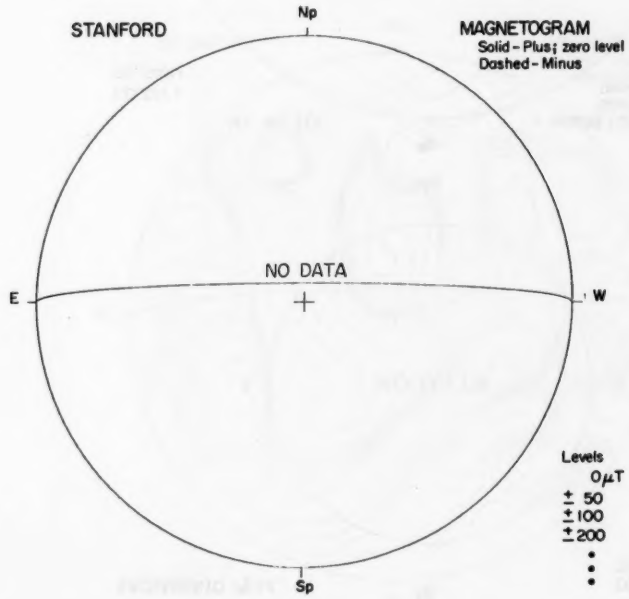


POOR	M
85-	2300-2.5
86-	3000-3.0
87-	1300-2.5
88-	2600-2.5
96-	2600-3.5
00-	3500-3.0
02-	2000-3.5
04-	3500-3.5

1500 UT

STANFORD MAGNETOGRAM

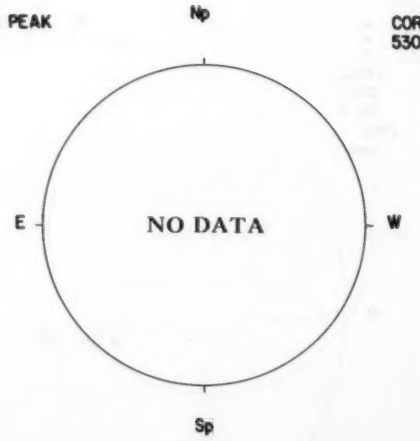
Solid - Plus; zero level
Dashed - Minus

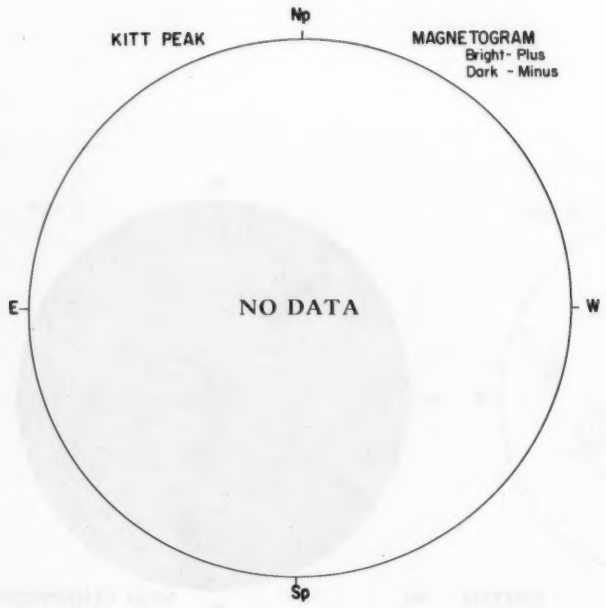


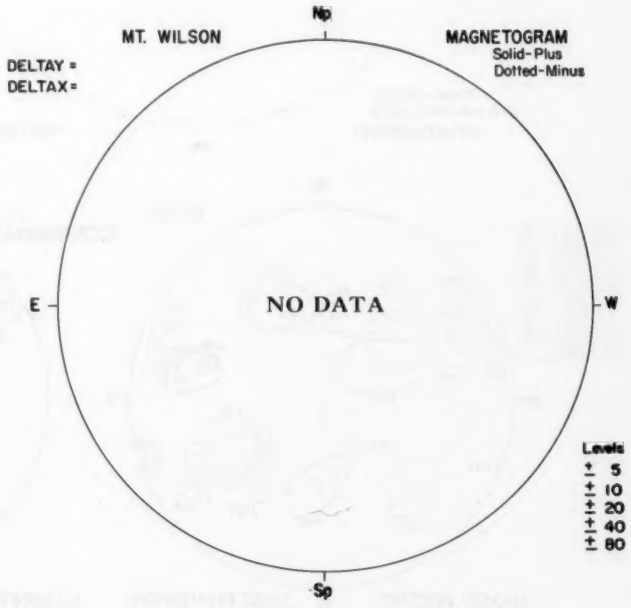
FEBRUARY 2, 1979 (P =-12.38, B_o =-6.08, L_o =21.39)

SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å





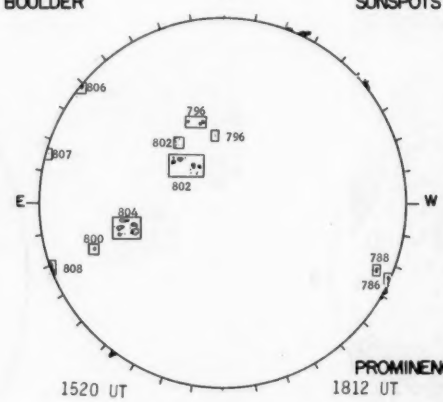


02

SACRAMENTO PEAK

1819 UT

Hα BOULDER



1520 UT

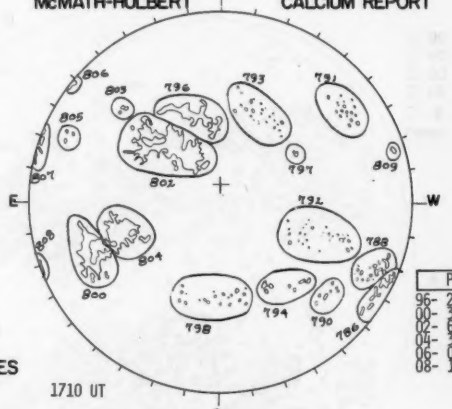
SUNSPOTS

PROMINENCES

1812 UT

McMATH-HULBERT

CALCIUM REPORT



POOR	M
96- 2400	3.0
00- 3500	3.0
02- 6600	3.5
04- 3300	3.5
06- 0800	2.5
08- 1200	2.5

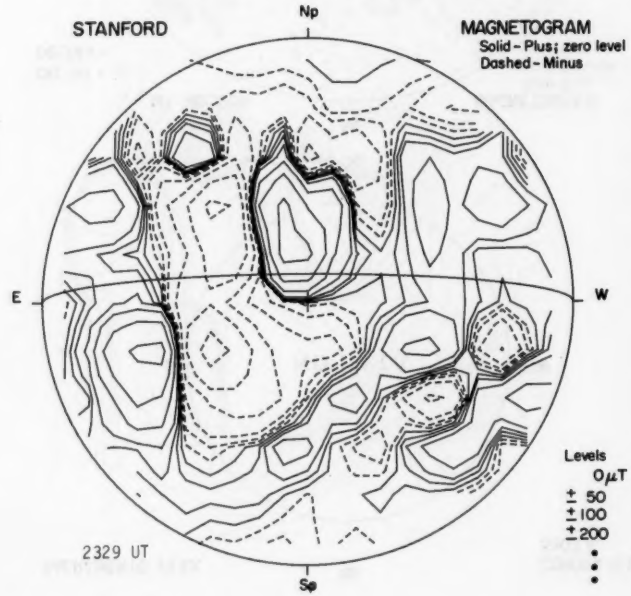
1710 UT

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



2329 UT

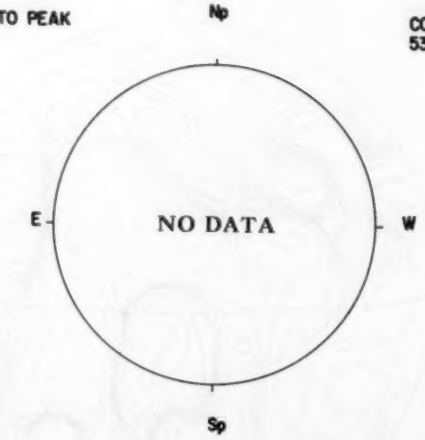
53

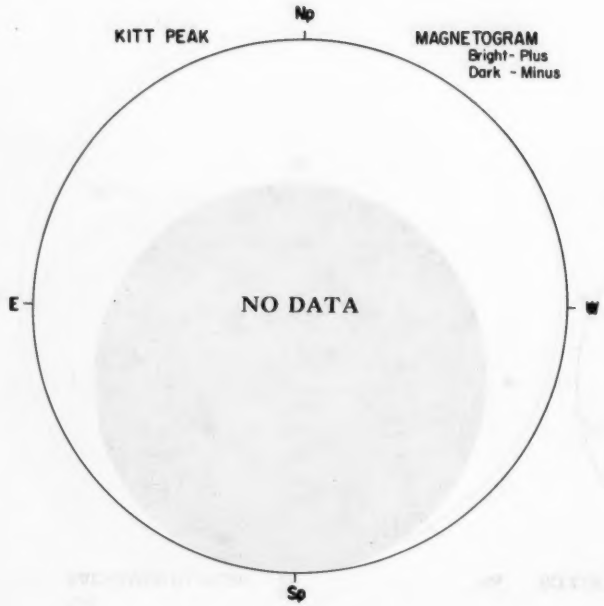
Feb 79

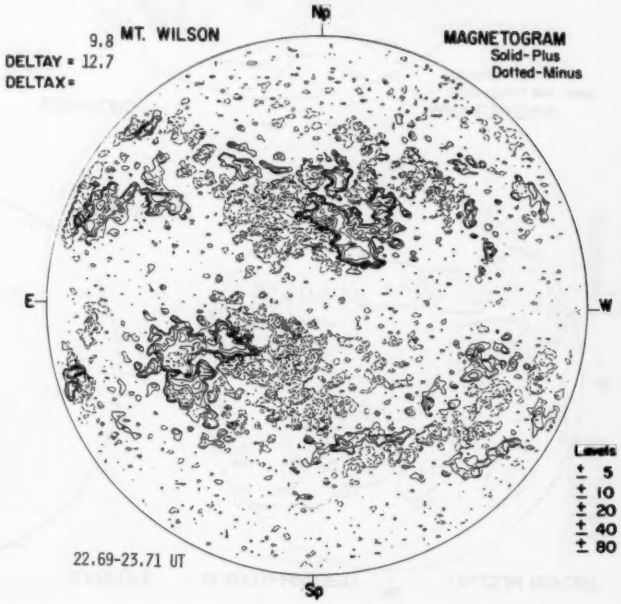
FEBRUARY 3, 1979 (P =-12.79, B_o =-6.15, L_o = 8.23)

SACRAMENTO PEAK

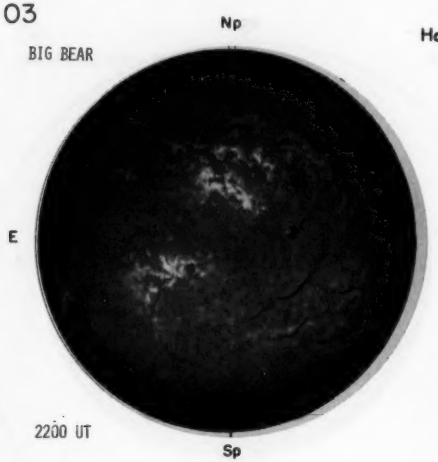
CORONA (1.15 $R_\odot$)
5303 Å

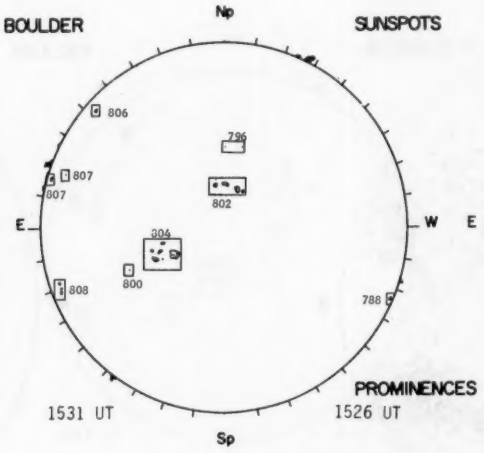






03

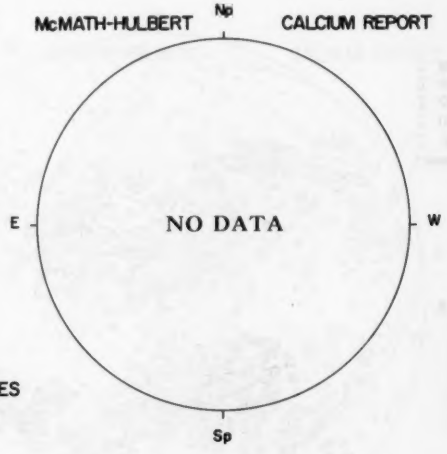




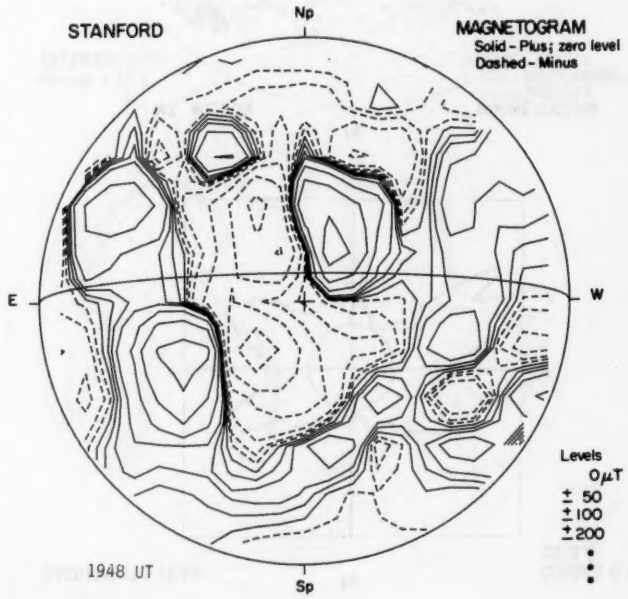
SUNSPOTS

PROMINENCES

1526 UT



CALCIUM REPORT

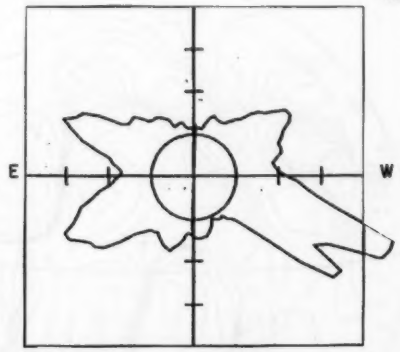


FEBRUARY 4, 1979 (P=-13.18, B_o=-6.22, L_o=355.06)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å



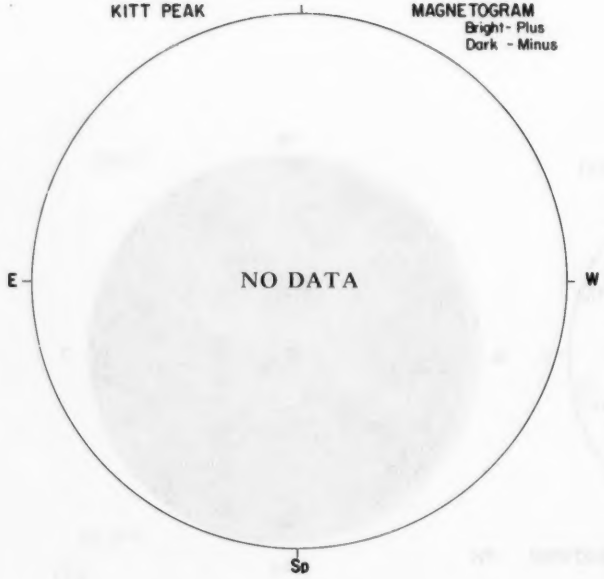
1813 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



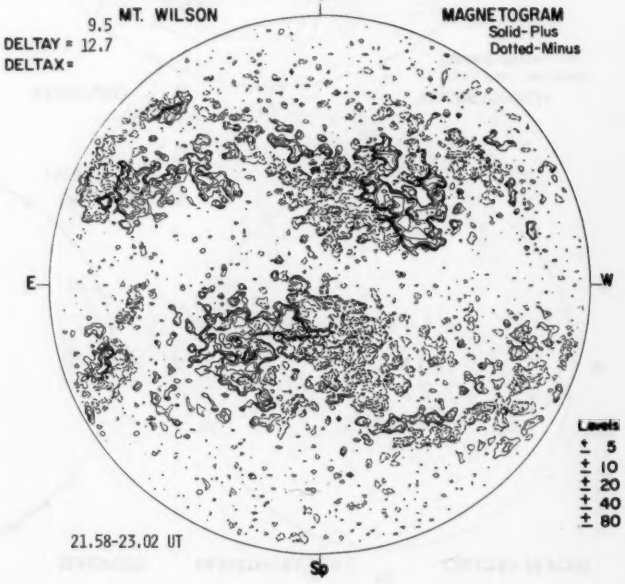
Sp

MT. WILSON

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY = 9.5
DELTAX = 12.7

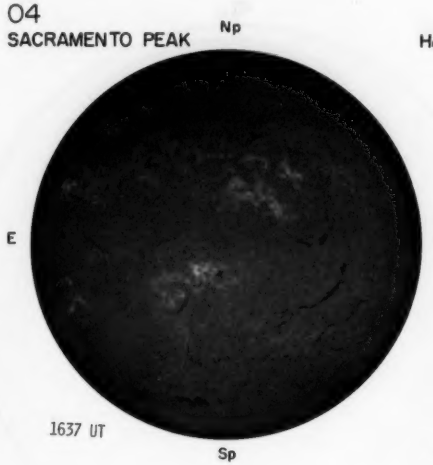


21.58-23.02 UT

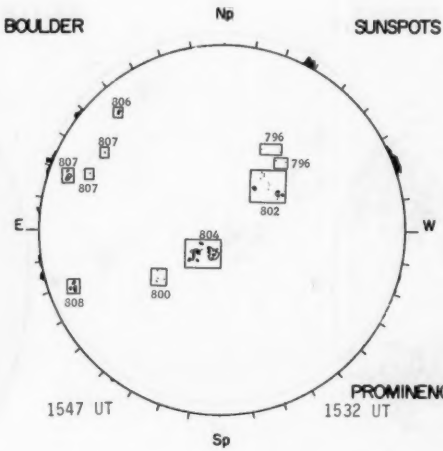
Sp

04

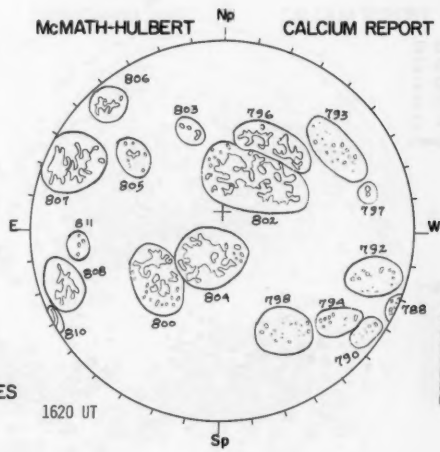
SACRAMENTO PEAK



Hα BOULDER



SUNSPOTS



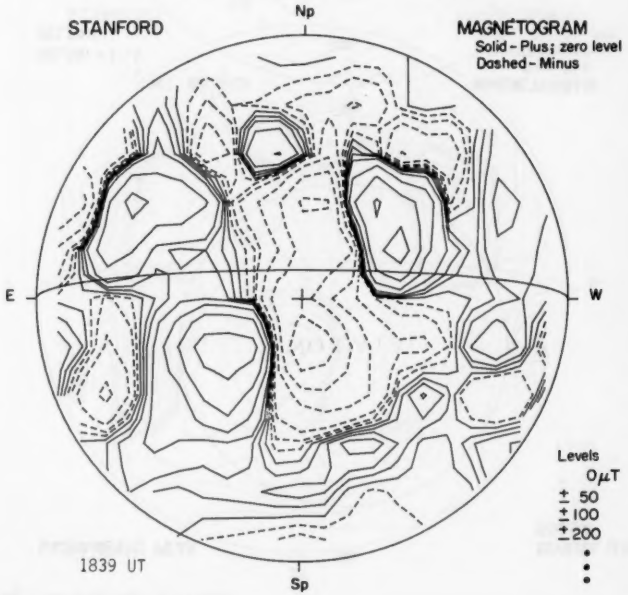
McMATH-HULBERT CALCIUM REPORT

	FAIR	M
96-	2400	3.0
00-	3100	3.0
02-	6700	3.0
04-	4000	3.0
06-	1100	2.0
07-	6000	3.0
08-	2200	3.0

PROMINENCES

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

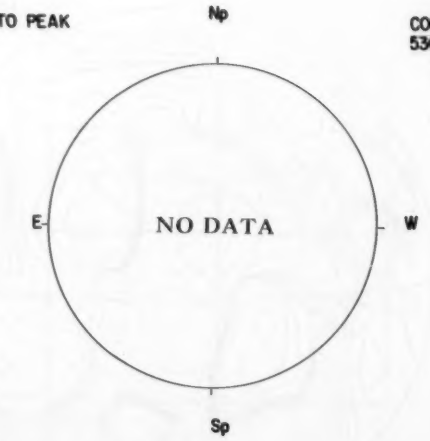


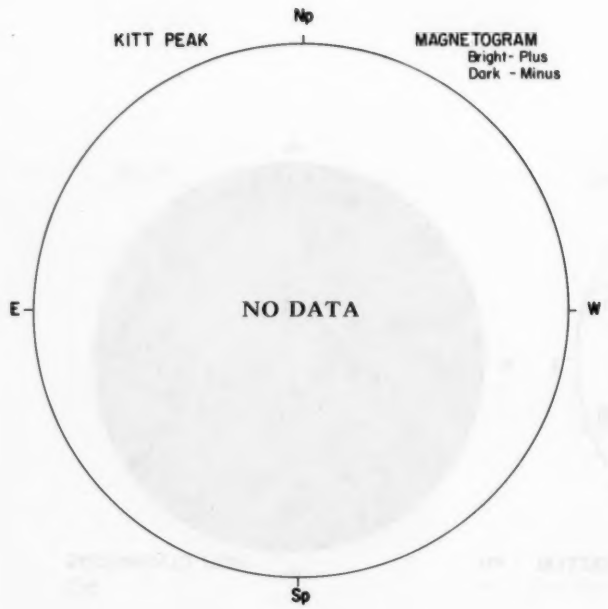
57
Feb 79

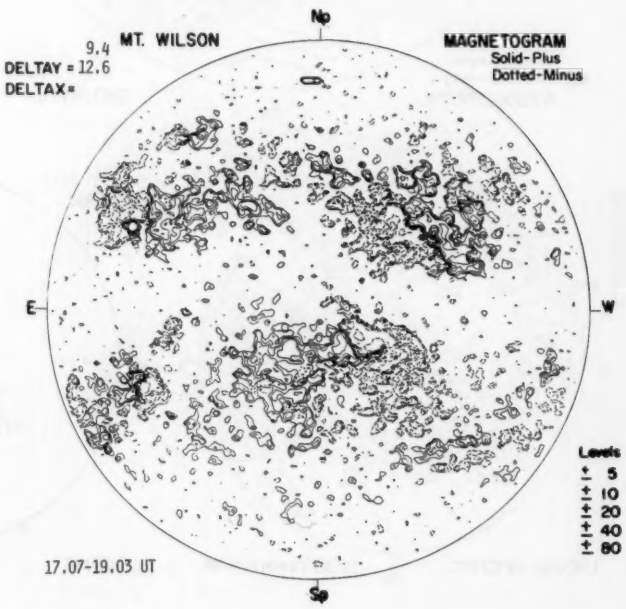
FEBRUARY 5, 1979 (P =-13.58, B_o =-6.28, L_o = 341.89)

SACRAMENTO PEAK

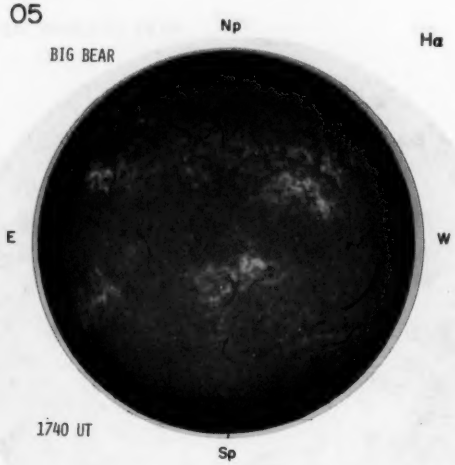
CORONA (1.15 $R_\odot$)
5303 Å

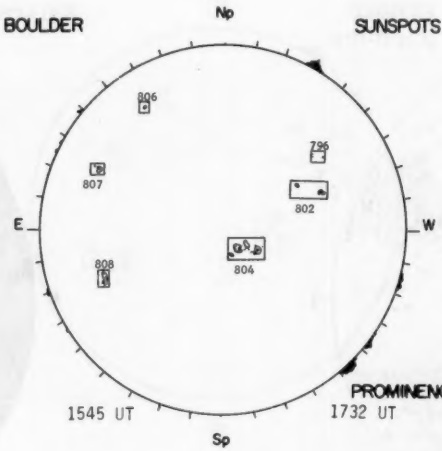


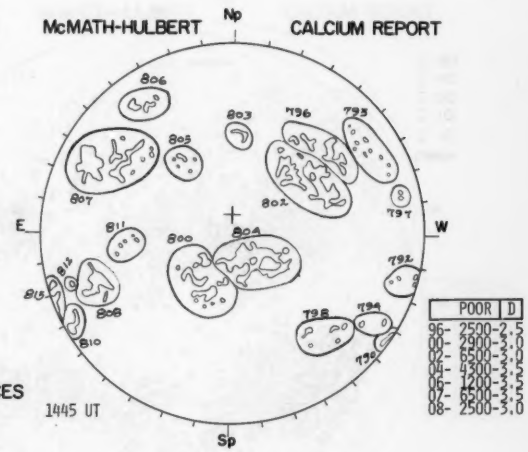


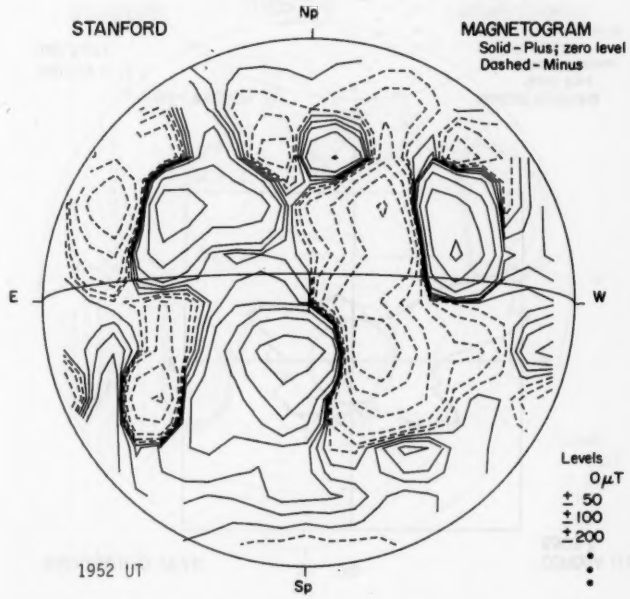


05


BIG BEAR
Np
E
W
Sp
1740 UT

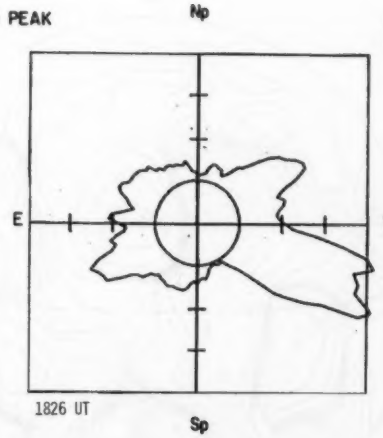

Hα
BOULDER
SUNSPOTS
Np
E
W
Sp
806
807
796
802
808
804
1545 UT
1732 UT
PROMINENCES

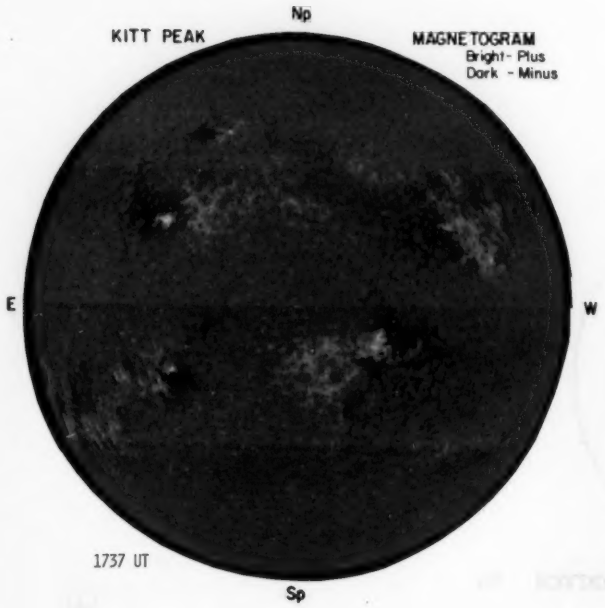

McMATH-HULBERT
CALCIUM REPORT
Np
E
W
Sp
806
803
796
793
805
807
802
797
811
800
804
812
815
808
810
792
798
794
790
1445 UT
POOR D
96- 2500-2.5
00- 2900-3.0
02- 6500-3.0
04- 4300-3.5
06- 1200-3.5
07- 6500-3.5
08- 2500-3.0

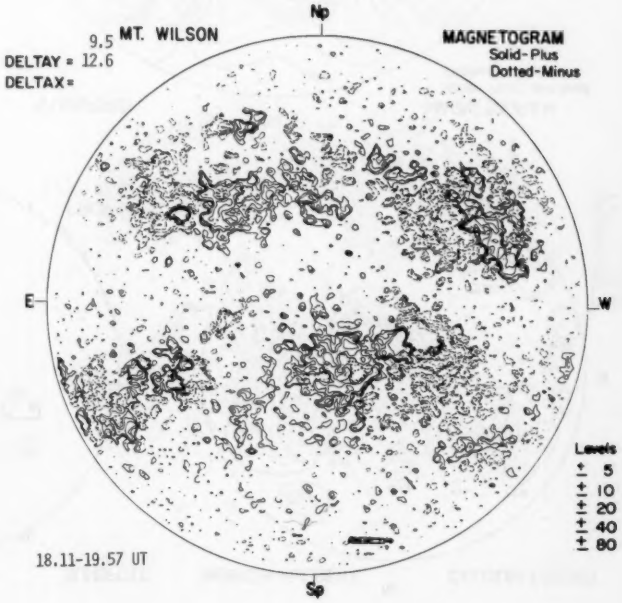

STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
Np
E
W
Sp
1952 UT
Levels
0μT
± 50
± 100
± 200

FEBRUARY 6, 1979 (P = -13.97, B_o = -6.34, L_o = 328.73)

SACRAMENTO PEAK

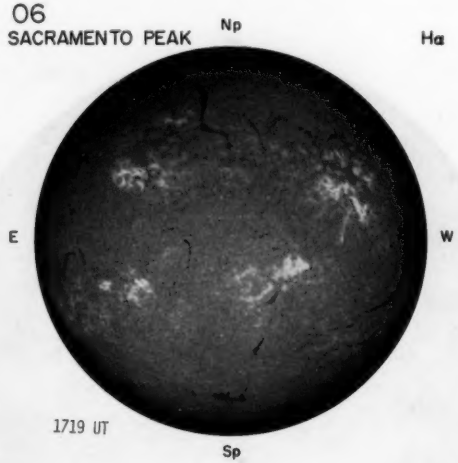




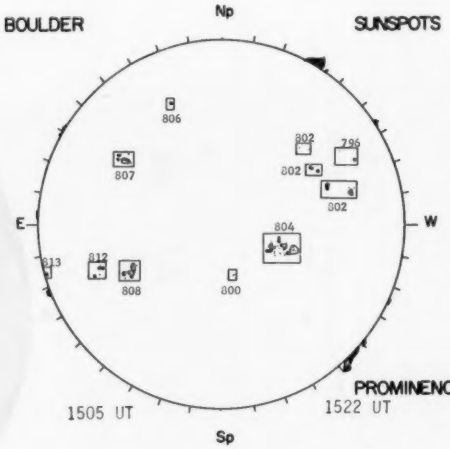


06

SACRAMENTO PEAK



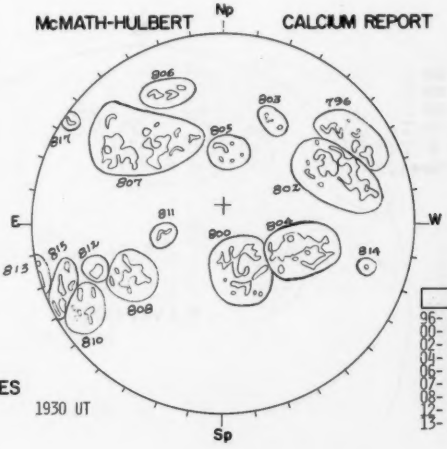
Hα BOULDER SUNSPOTS



PROMINENCES

1522 UT

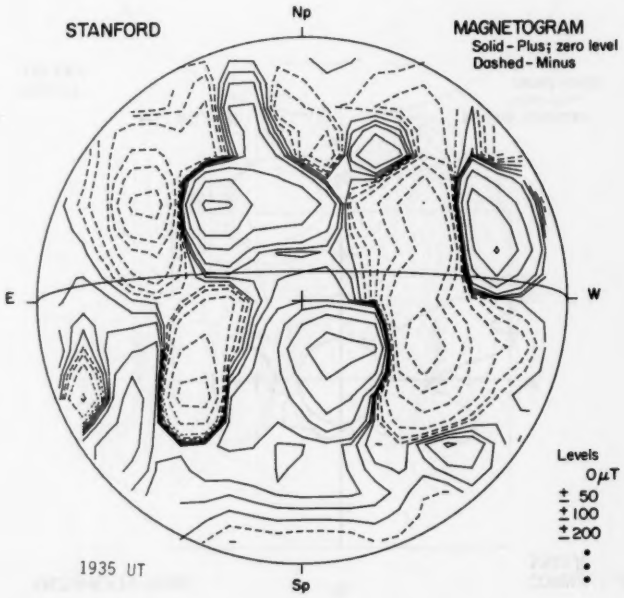
McMATH-HULBERT CALCIUM REPORT



	POOR	S
96-	2200	2.5
00-	2800	2.5
02-	0200	3.0
04-	0400	3.0
06-	1200	3.0
07-	0800	3.0
08-	2500	3.0
12-	0800	3.0
13-	1200	2.5

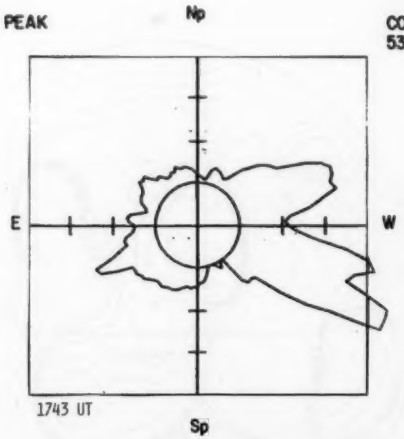
STANFORD MAGNETOGRAM

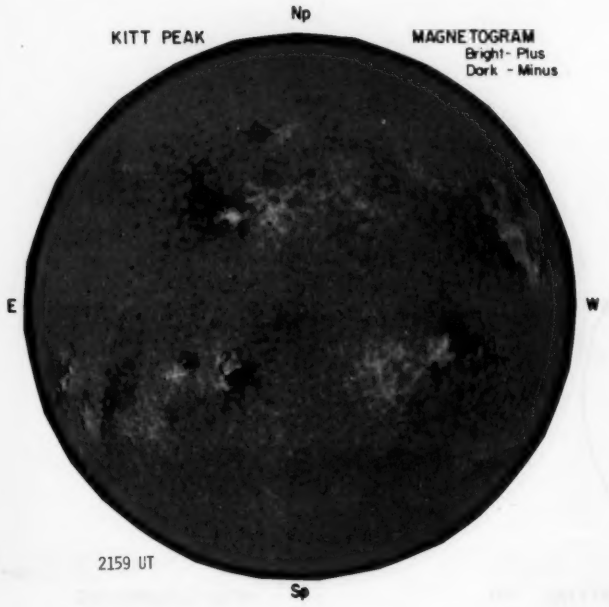
Solid - Plus; zero level
Dashed - Minus

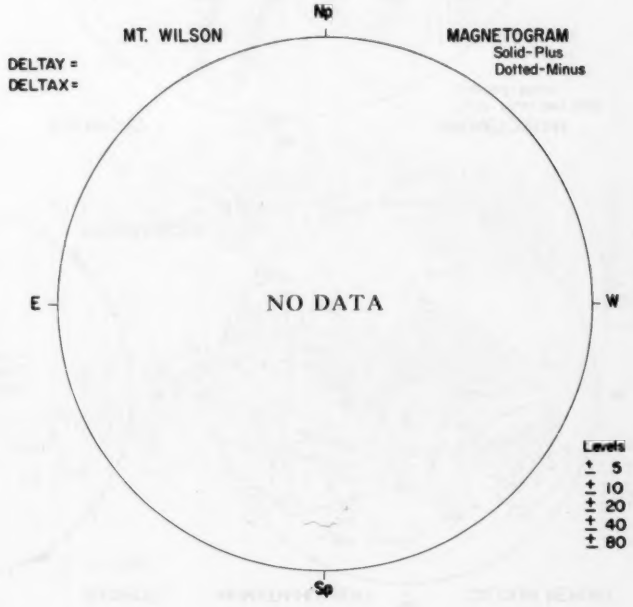


FEBRUARY 7, 1979 (P =-14.35, B_o =-6.41, L_o = 315.56)

SACRAMENTO PEAK





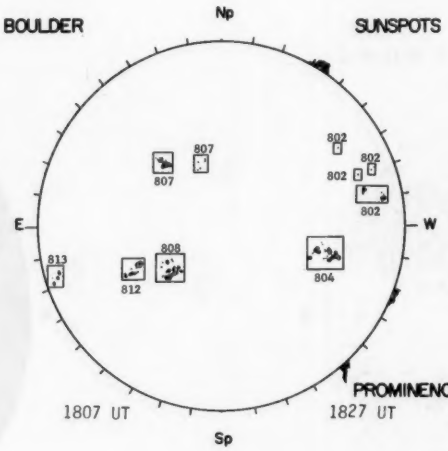


07

SACRAMENTO PEAK

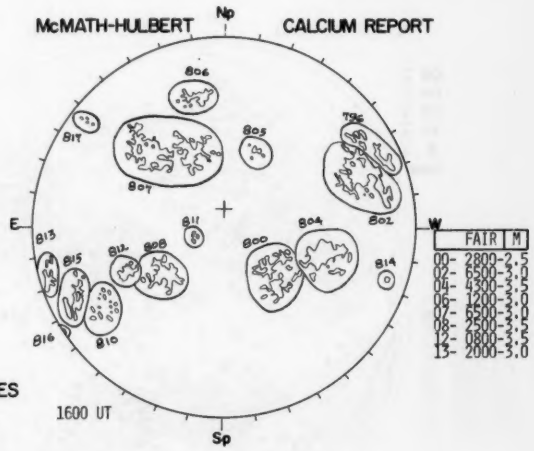
Hα

BOULDER SUNSPOTS

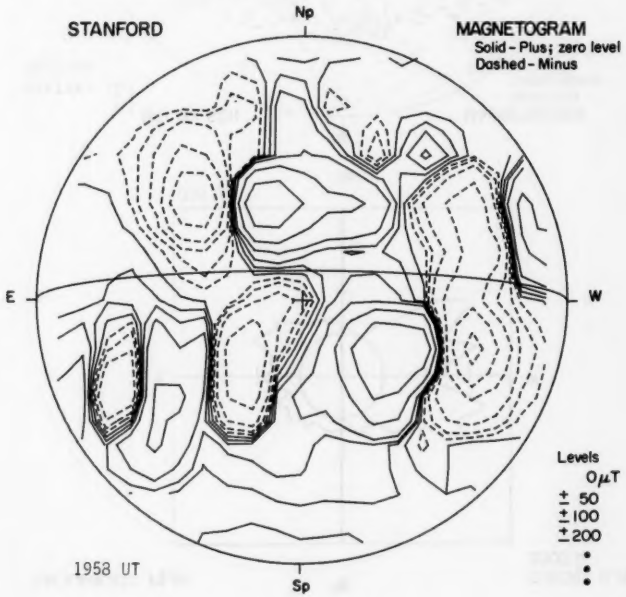


PROMINENCES

McMATH-HULBERT CALCIUM REPORT



STANFORD



MAGNETOGRAM

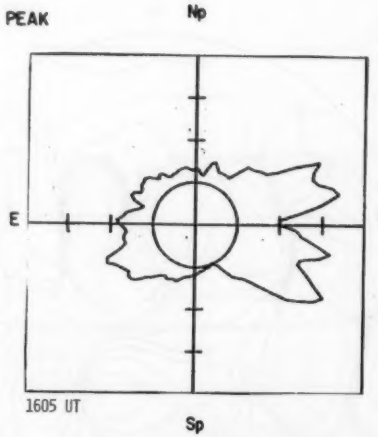
Solid - Plus; zero level
Dashed - Minus

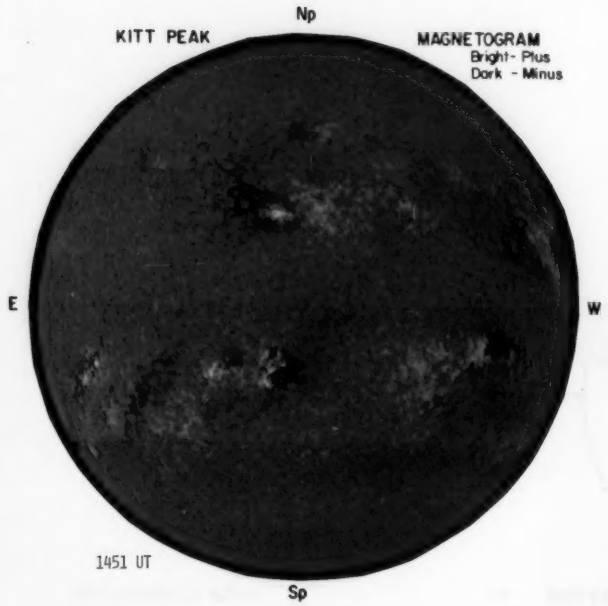
Levels
0 μT
± 50
± 100
± 200

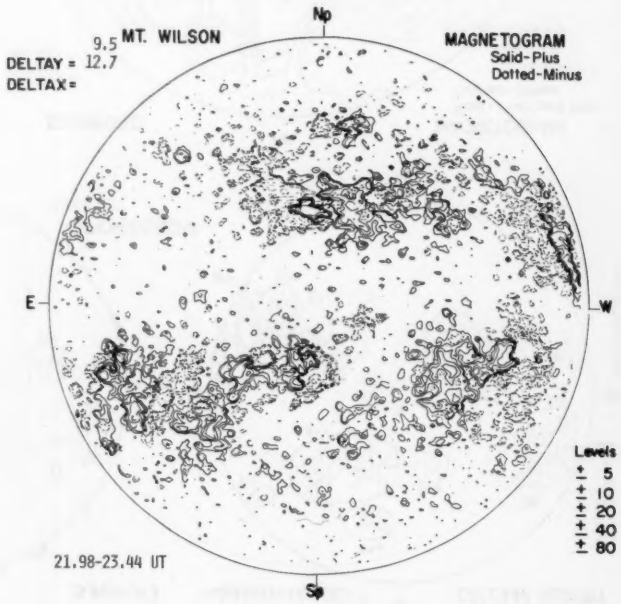
63
Feb 79

FEBRUARY 8, 1979 (P =-14.73, B_o =-6.47, L_o = 302.39)

SACRAMENTO PEAK

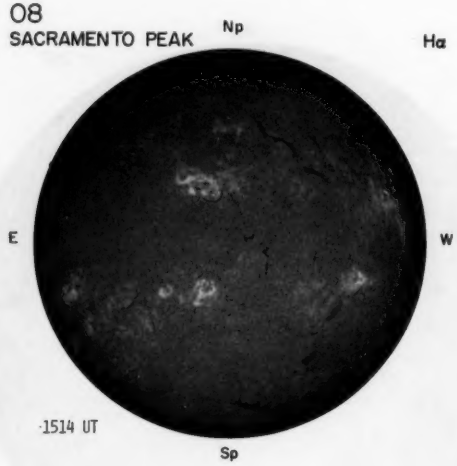






08

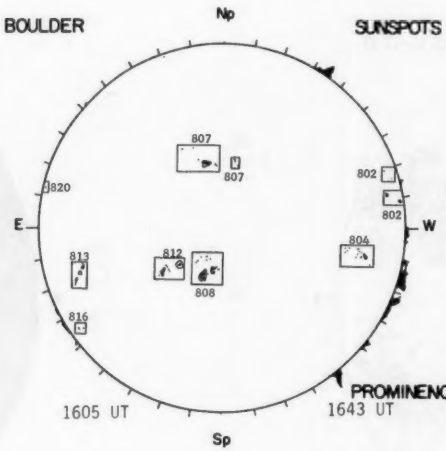
SACRAMENTO PEAK



1514 UT

Hα

BOULDER



1605 UT

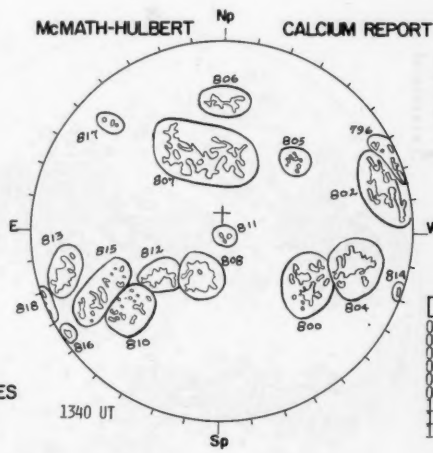
SUNSPOTS

PROMINENCES

1643 UT

McMATH-HULBERT

CALCIUM REPORT



1340 UT

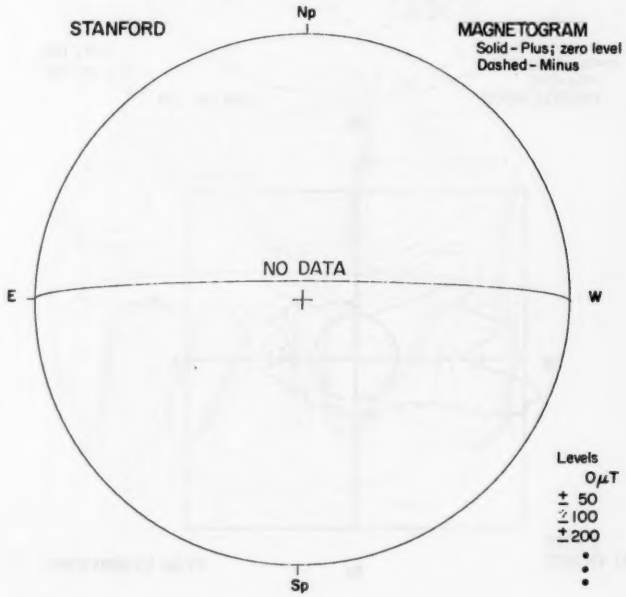
FAIR	M
00- 2500-2.5	
02- 6500-3.0	
04- 0500-3.5	
06- 1000-2.5	
07- 6500-3.5	
08- 2800-3.0	
12- 0800-3.0	
13- 3000-3.0	
15- 2300-2.5	

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

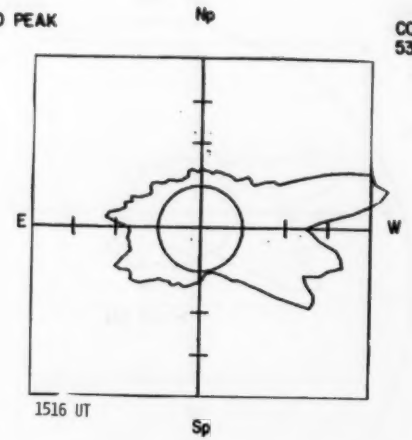


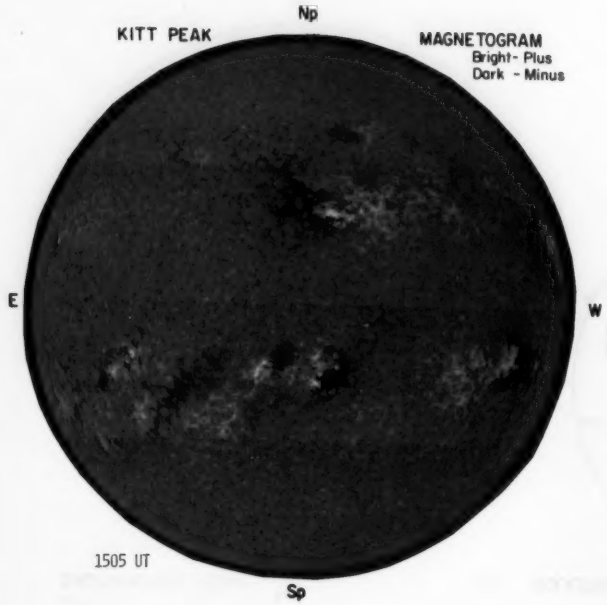
65

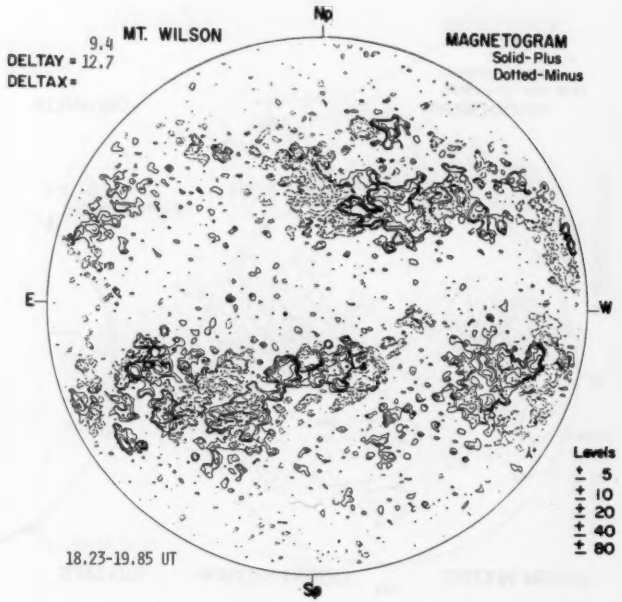
Feb 79

FEBRUARY 9, 1979 (P =-15.11, B_o =-6.52, L_o = 289.23)

SACRAMENTO PEAK

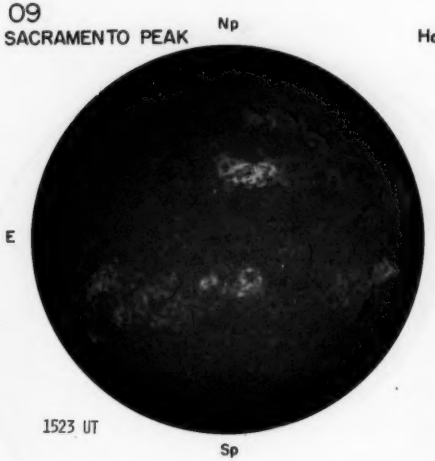






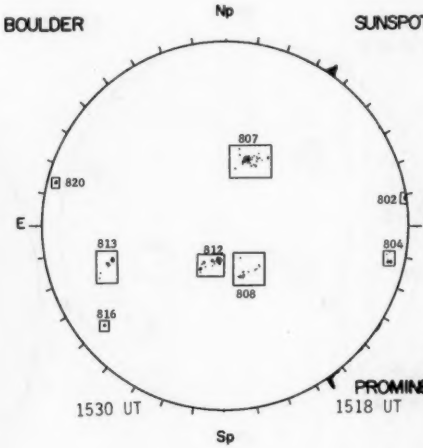
09

SACRAMENTO PEAK



1523 UT

Hα BOULDER



1530 UT

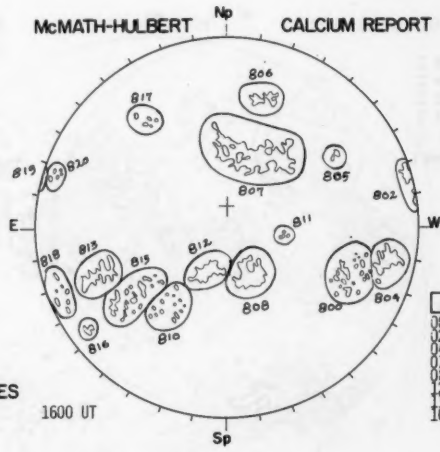
SUNSPOTS

PROMINENCES

1518 UT

McMATH-HULBERT

CALCIUM REPORT



1600 UT

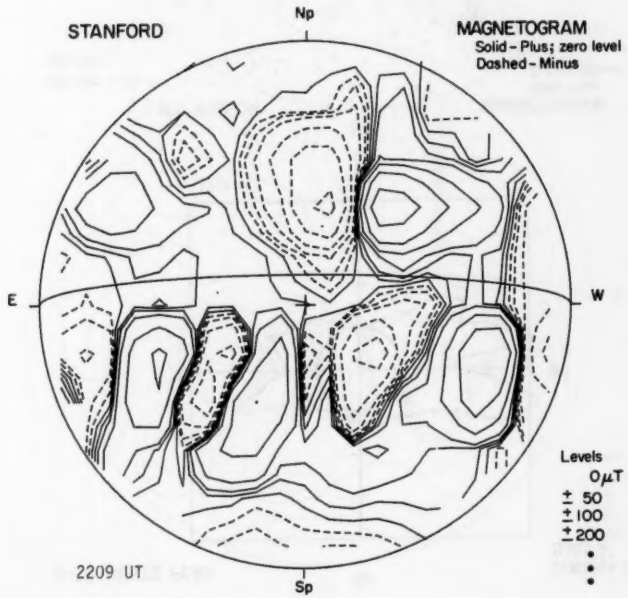
	FAIR	M
00-	2500	2.5
02-	3000	2.5
04-	3800	3.5
07-	6900	3.5
08-	2500	3.0
12-	1300	3.0
13-	2700	2.5
16-	0600	3.0

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



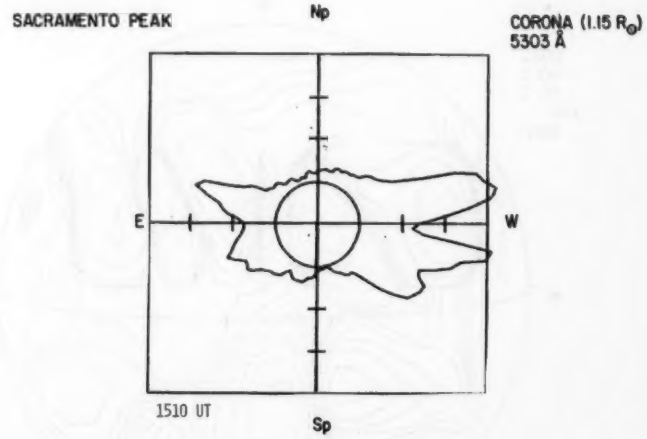
2209 UT

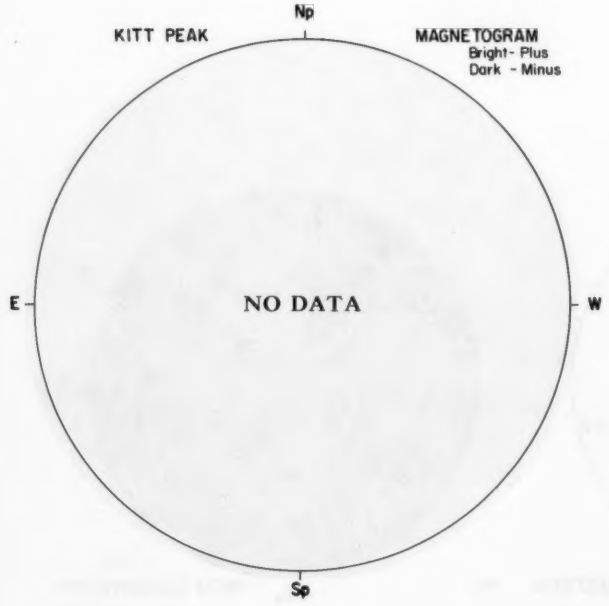
67

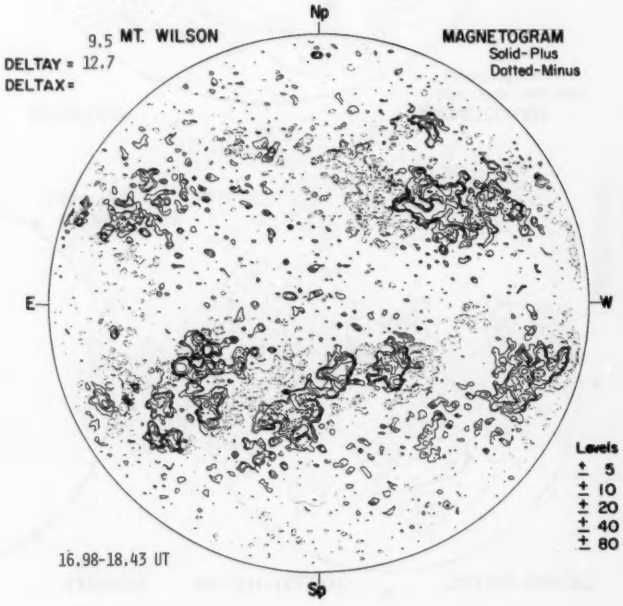
Feb 79

FEBRUARY 10, 1979 (P =-15.48, B_o =-6.58, L_o =276.06)

SACRAMENTO PEAK

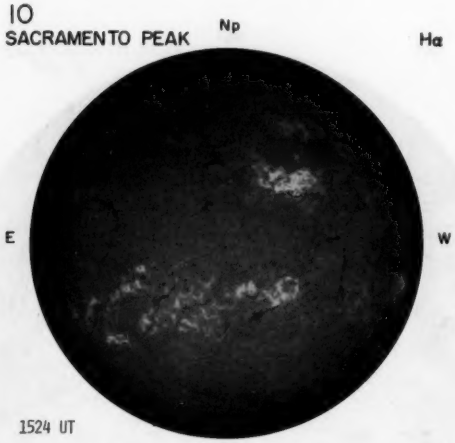




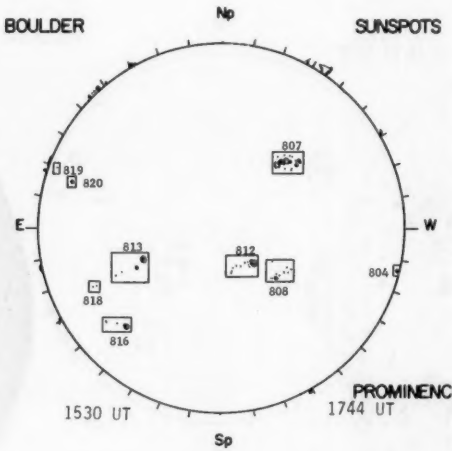


10

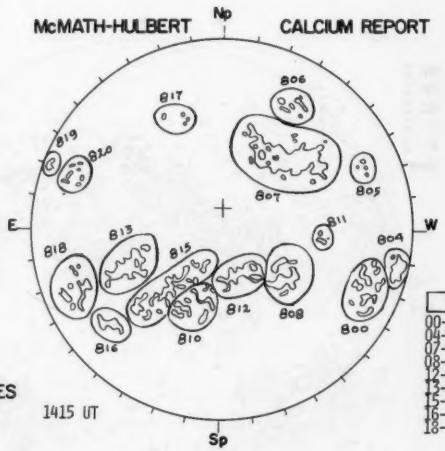
SACRAMENTO PEAK



Hα BOULDER SUNSPOTS



McMATH-HULBERT CALCIUM REPORT



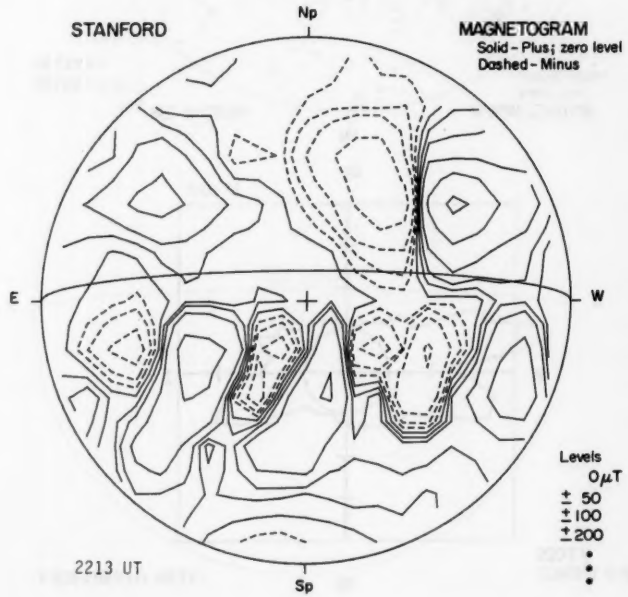
FAIR	S
00- 2500-2.5	
04- 3400-3.0	
07- 7200-3.5	
08- 2500-3.0	
12- 1500-3.0	
13- 3000-3.0	
15- 2300-2.5	
16- 1200-3.0	
18- 1500-2.5	

PROMINENCES

1744 UT

STANFORD MAGNETOGRAM

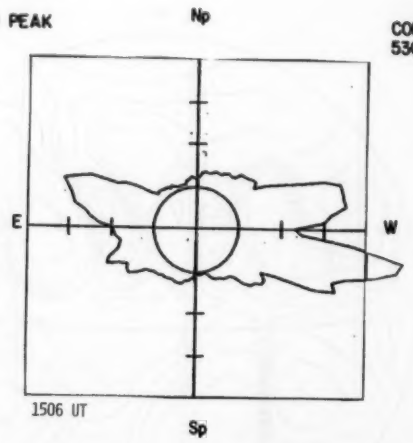
Solid - Plus; zero level
Dashed - Minus

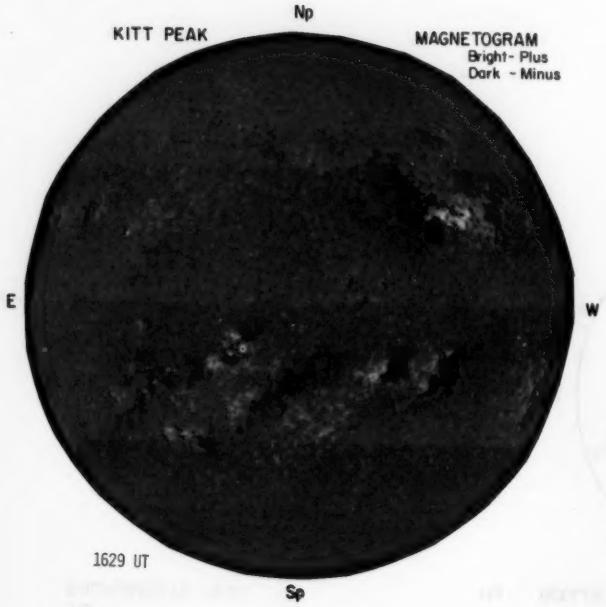


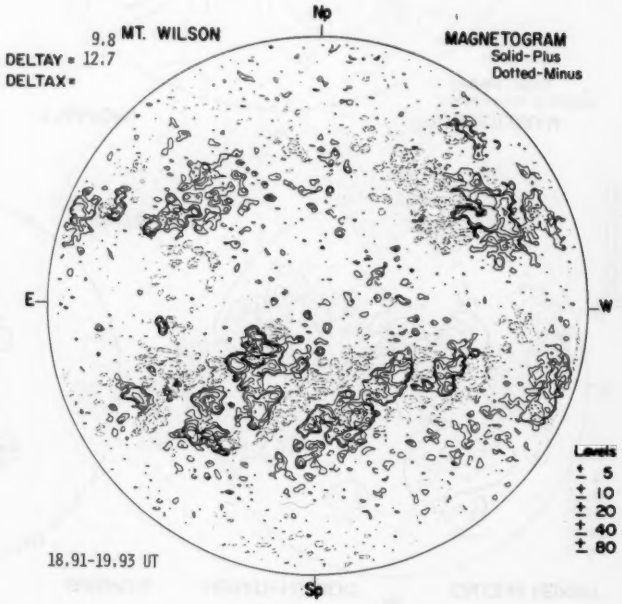
69
Feb 79

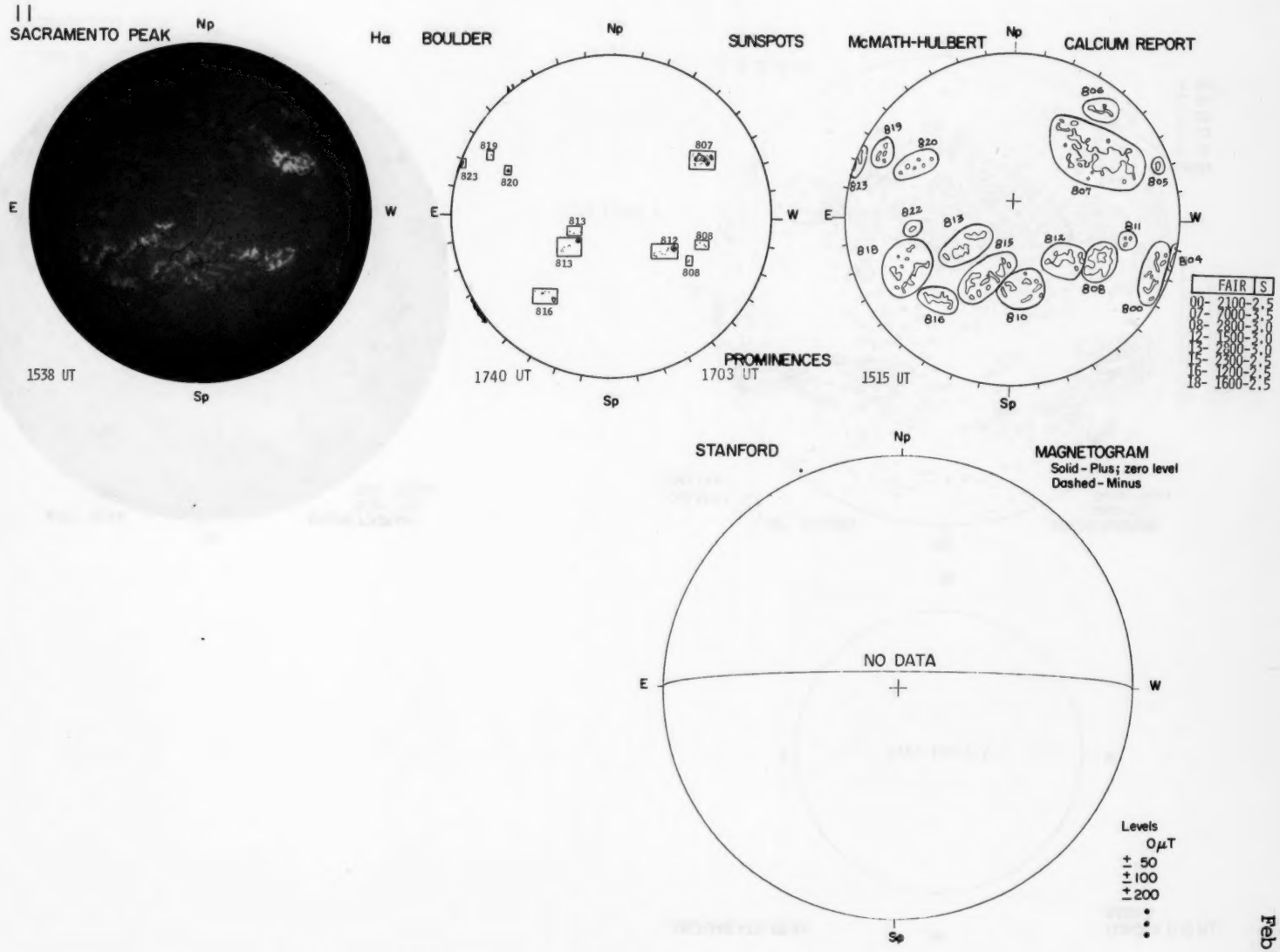
FEBRUARY 11, 1979 (P=-15.84, B_o=-6.63, L_o=262.89)

SACRAMENTO PEAK








SACRAMENTO PEAK
Np
Hα
E
W
Sp
1538 UT
BOULDER
SUNSPOTS
PROMINENCES
1740 UT
1703 UT
McMATH-HULBERT
CALCIUM REPORT
1515 UT
FAIR S
00- 2100-2.5
07- 7000-3.5
08- 2800-3.0
12- 1500-3.0
13- 2800-3.0
15- 2300-2.5
16- 1200-2.5
18- 1600-2.5
STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
NO DATA
Levels
0μT
± 50
± 100
± 200

FEBRUARY 12, 1979 (P =-16.20, B_o =-6.68, L_o = 249.72)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright- Plus
Dark - Minus

E

W

1542 UT

Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

12.7
DELTAY = 9.7
DELTAX =

E

W

Levels
± 5
± 10
± 20
± 40
± 80

17.08-18.02 UT

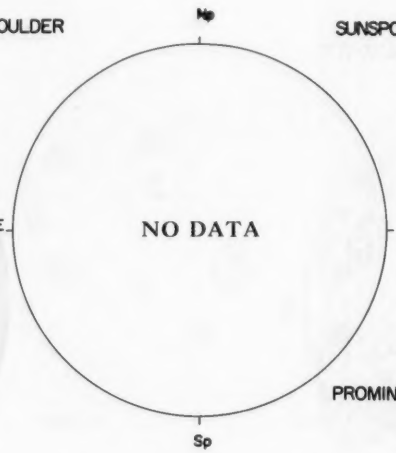
Sp

12

SACRAMENTO PEAK Hα

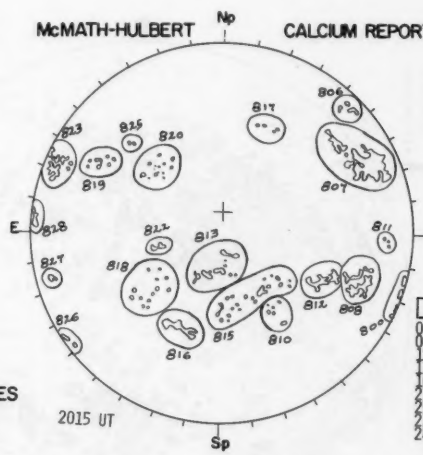
1728 UT

BOULDER SUNSPOTS



PROMINENCES

McMATH-HULBERT CALCIUM REPORT

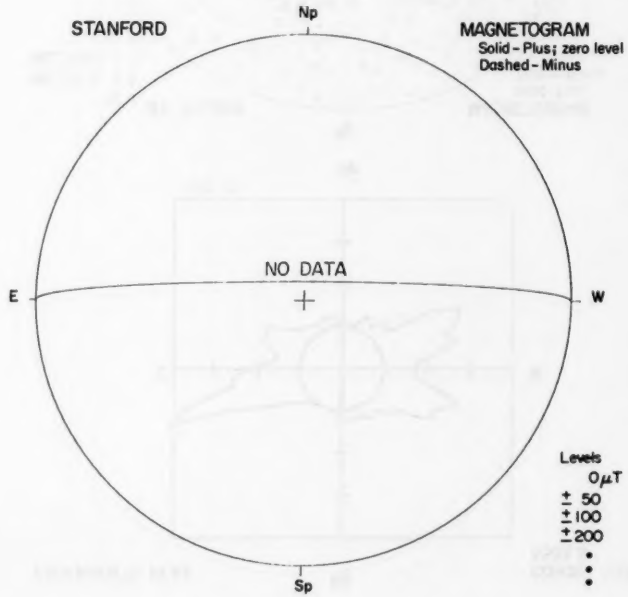


2015 UT

	POOR	S
07-	7000-	3.5
08-	2500-	3.0
12-	1700-	3.0
13-	2000-	2.5
16-	1200-	3.0
23-	3800-	3.0
25-	0200-	2.5
27-	0900-	2.5
28-	1100-	3.5

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



73
Feb 79

FEBRUARY 13, 1979 (P=-16.55, B_o=-6.73, L_o=236.56)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

W

2342 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

W

1559 UT

Sp

12.7
DELTAY = 9.4
DELTAX =

MT. WILSON

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

E

W

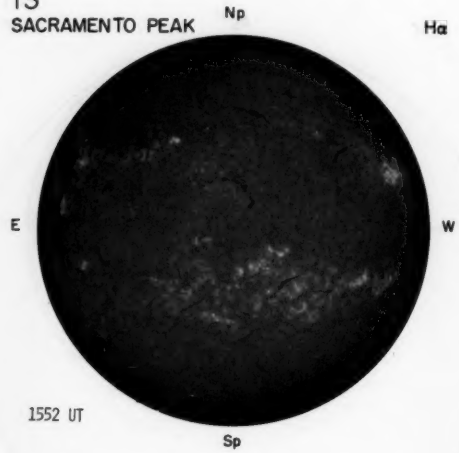
Levels
+|+|+|+|+|+|+|
5
10
20
40
80

18.11-19.95 UT

Sp

13

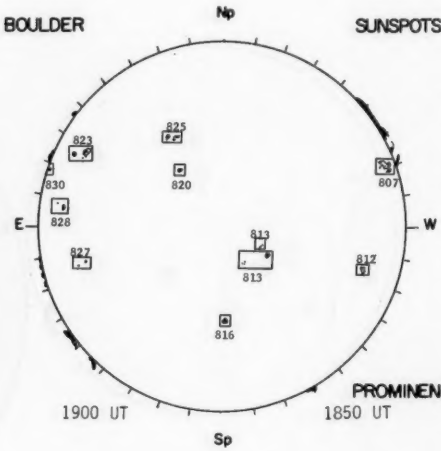
SACRAMENTO PEAK



1552 UT

Hα

BOULDER



1900 UT

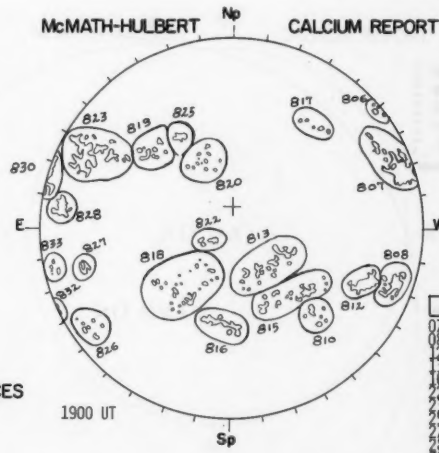
SUNSPOTS

PROMINENCES

1850 UT

McMATH-HULBERT

CALCIUM REPORT



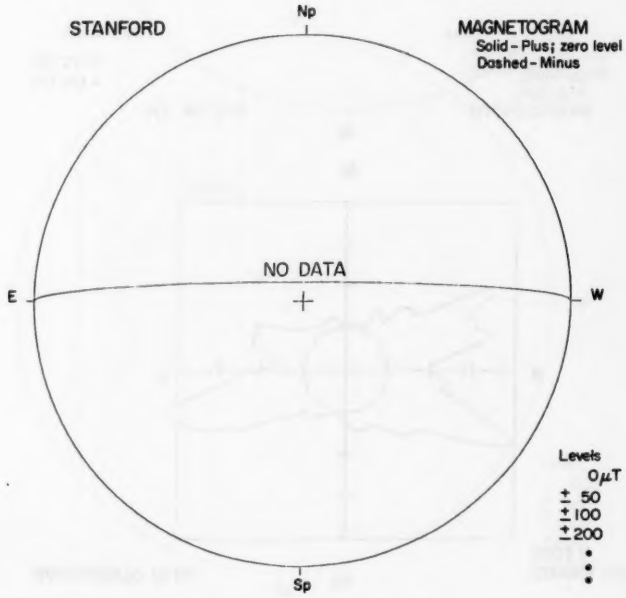
	FAIR	M
07-	7000-	3.5
08-	2500-	3.0
12-	1800-	2.5
13-	2000-	2.5
16-	1200-	2.5
22-	0400-	2.5
23-	4100-	3.5
25-	0400-	3.5
27-	0800-	2.5
28-	1500-	3.5
30-	4000-	2.5

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

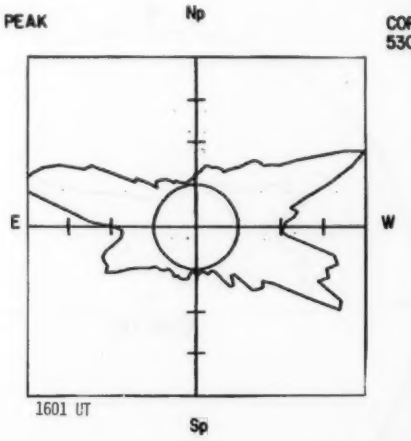


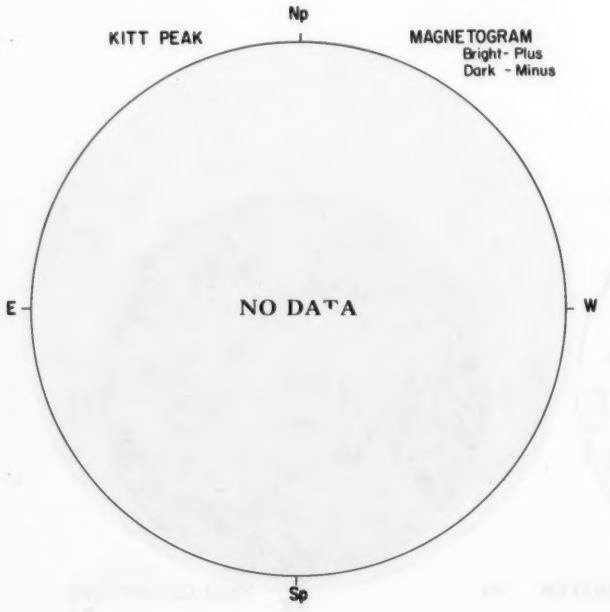
75

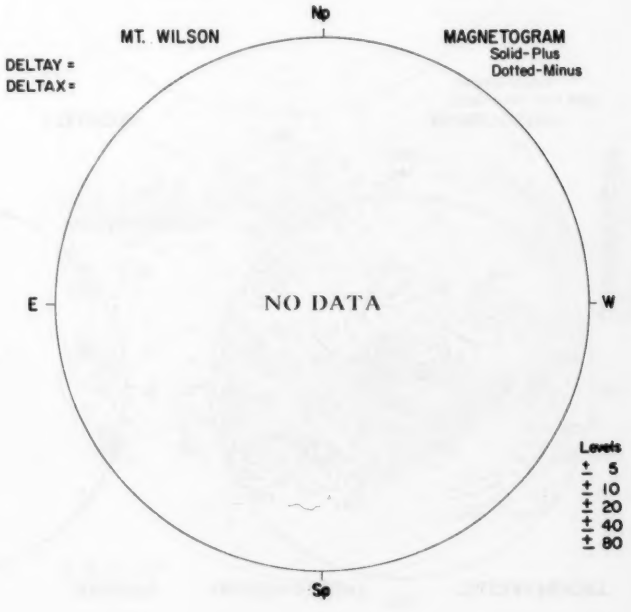
Feb 79

FEBRUARY 14, 1979 (P =-16.90, B_o =-6.78, L_o = 223.39)

SACRAMENTO PEAK

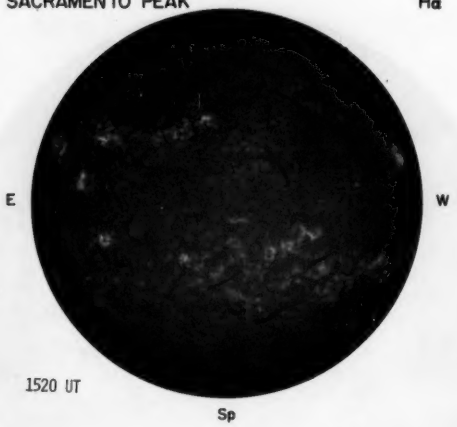




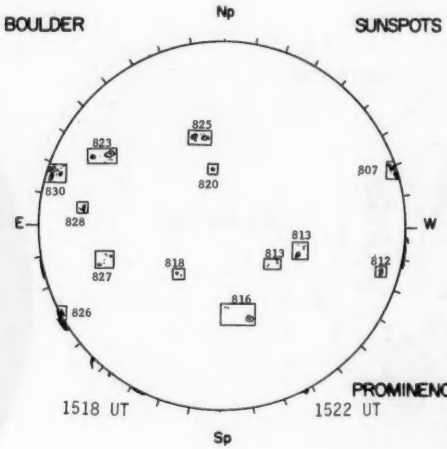


14

SACRAMENTO PEAK



Hα BOULDER

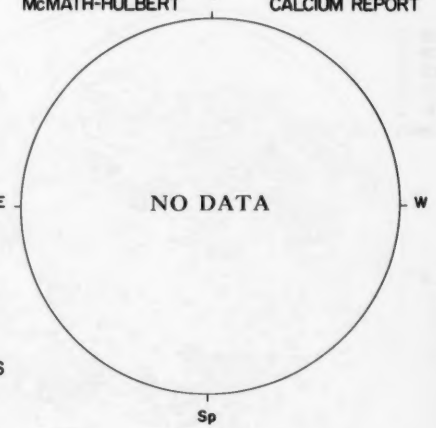


SUNSPOTS

PROMINENCES

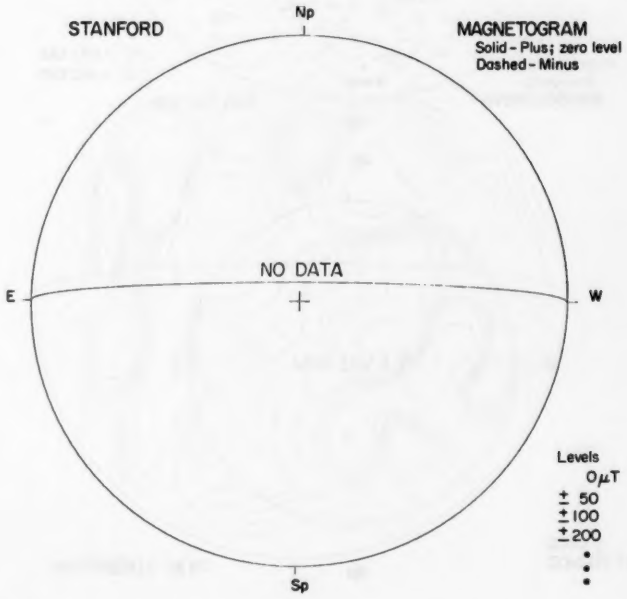
1522 UT

McMATH-HULBERT



CALCIUM REPORT

STANFORD



MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

77

Feb 79

FEBRUARY 15, 1979 (P=-17.24, B_o=-6.82, L_o=210.22)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

W

1502 UT

Sp

MT. WILSON

Np

DELTAY = 12.7
DELTAX = 9.7

MAGNETOGRAM
Solid - Plus
Dotted - Minus

E

W

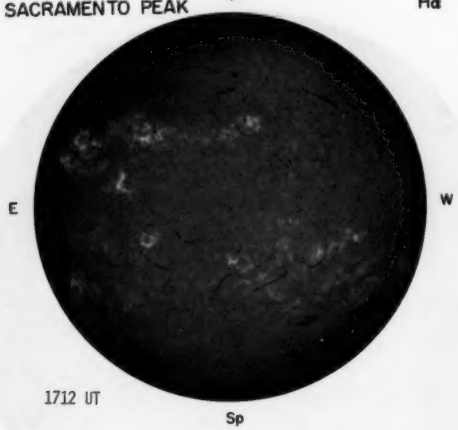
20.21-21.42 UT

Levels
± 5
± 10
± 20
± 40
± 80

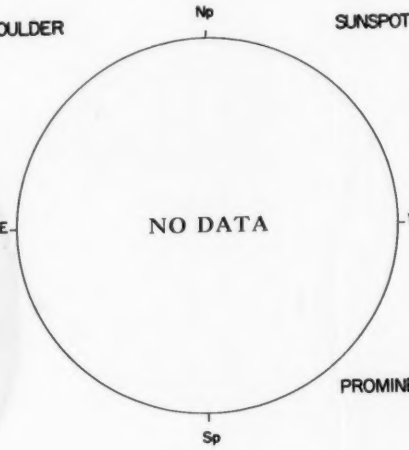
Sp

15

SACRAMENTO PEAK

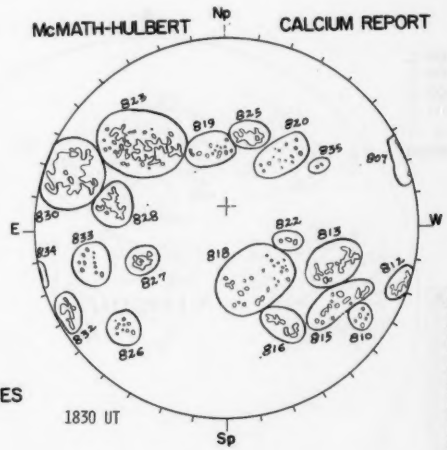


Hα BOULDER



SUNSPOTS

McMATH-HULBERT



CALCIUM REPORT

	FAIR	M
12-	2200-	2.5
13-	1900-	2.5
14-	1400-	2.5
15-	1700-	2.5
16-	1200-	2.5
22-	0300-	3.5
23-	4500-	3.5
26-	1400-	3.5
27-	1100-	3.5
28-	1400-	3.5
30-	2200-	3.5
32-	1600-	3.5

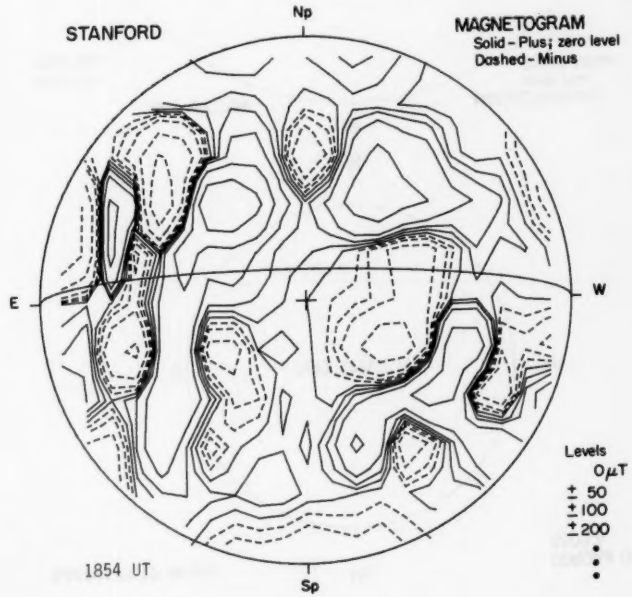
PROMINENCES

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



79

Feb 79

FEBRUARY 16, 1979 (P=-17.58, B_o=-6.86, L_o=197.05)

SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å

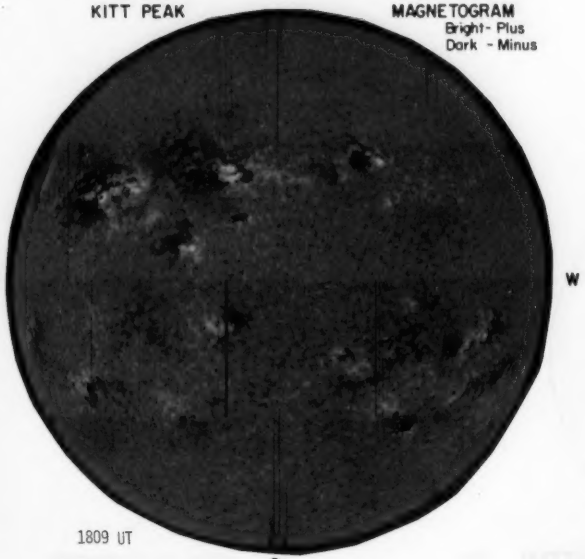
Np

E — NO DATA — W

Sp

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid - Plus
Dotted - Minus

Np

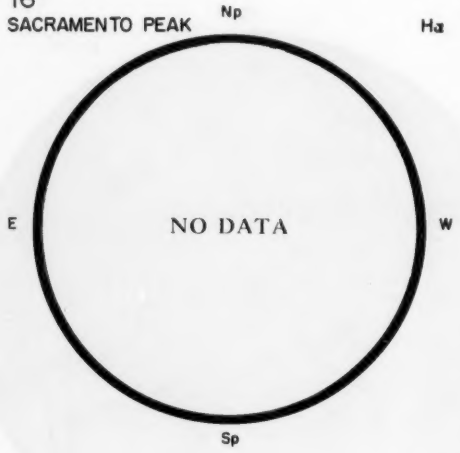
E — NO DATA — W

Sp

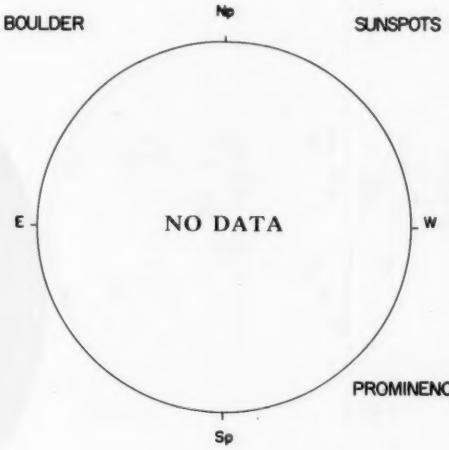
Levels
± 5
± 10
± 20
± 40
± 80

16

SACRAMENTO PEAK Hα

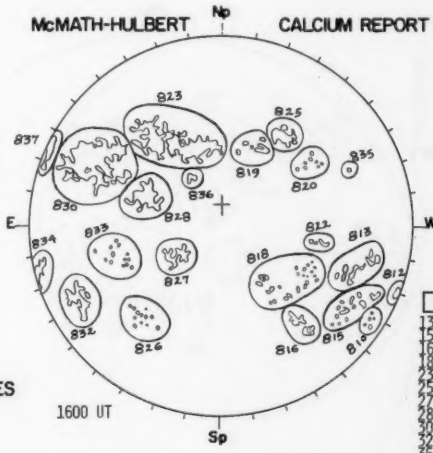


BOULDER



SUNSPOTS

McMATH-HULBERT



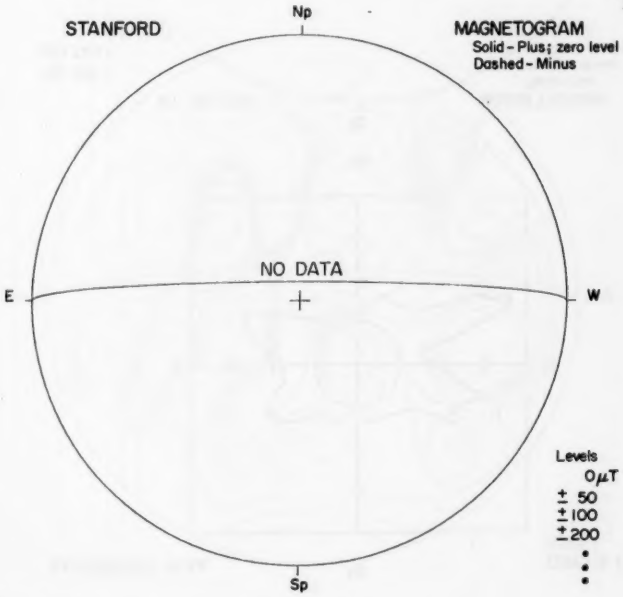
CALCIUM REPORT

	FAIR	M
13-	1900-	3.0
15-	1700-	2.5
16-	1100-	2.5
18-	1200-	2.5
23-	0300-	2.5
25-	1500-	3.5
27-	1100-	2.5
28-	1700-	3.0
30-	0000-	3.5
32-	2300-	3.5
36-	0200-	2.5
37-	0300-	2.5

PROMINENCES

1600 UT

STANFORD



MAGNETOGRAM

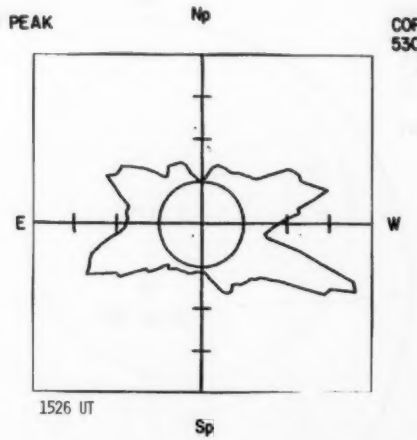
Solid - Plus; zero level
Dashed - Minus

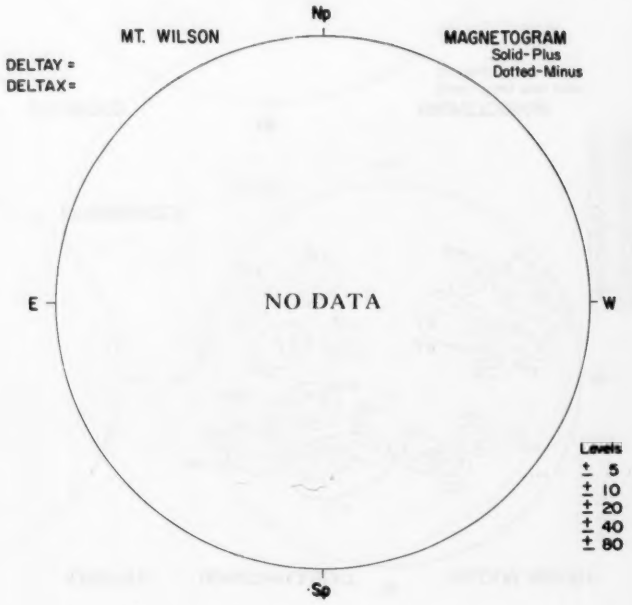
Levels
0 μT
± 50
± 100
± 200
• • •

81
Feb 79

FEBRUARY 17, 1979 (P = -17.91, B_o = -6.90, L_o = 183.88)

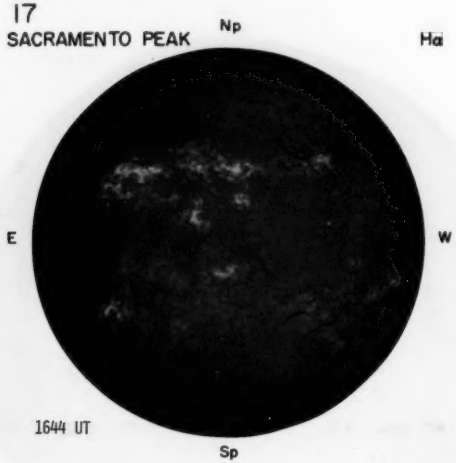
SACRAMENTO PEAK





17

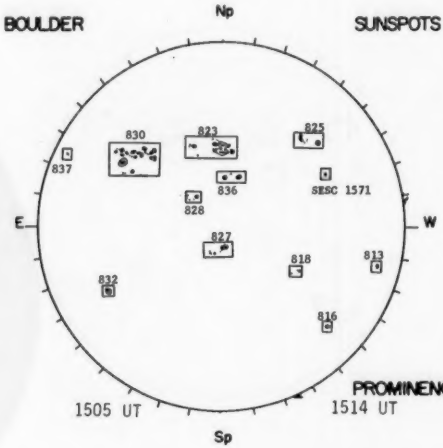
SACRAMENTO PEAK



1644 UT

Hα

BOULDER



1505 UT

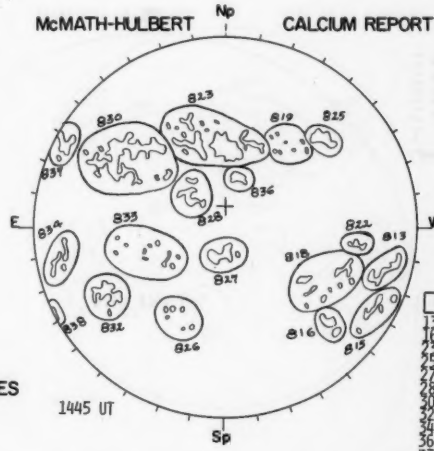
SUNSPOTS

PROMINENCES

1514 UT

McMATH-HULBERT

CALCIUM REPORT



1445 UT

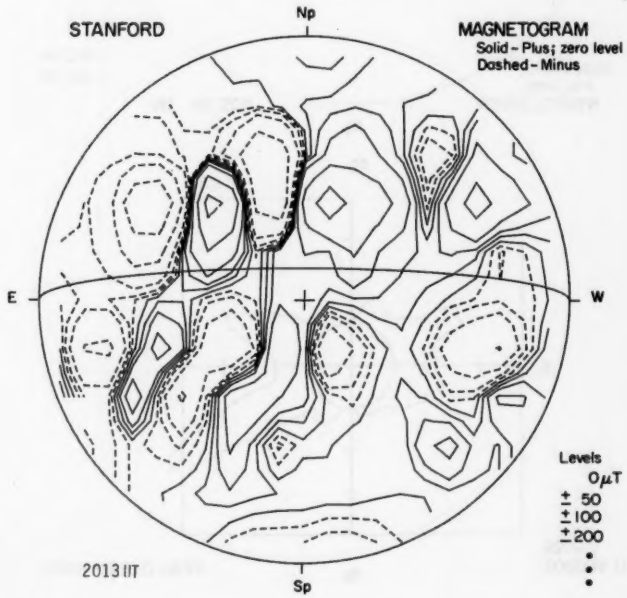
	POOR	S
13-	1900	3.0
16-	1100	2.5
23-	5800	3.0
25-	1600	3.0
27-	1200	3.0
28-	1400	3.0
30-	7600	3.0
32-	2300	3.0
34-	1700	2.5
36-	0700	2.5
37-	3000	3.0

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



2013 UT

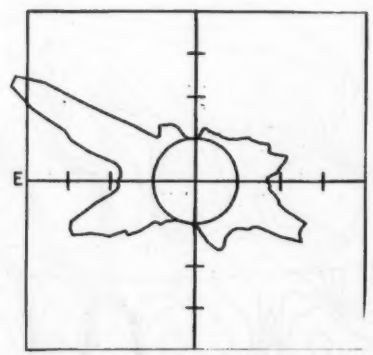
83 Feb 79

FEBRUARY 18, 1979 (P =-18.24, B_o =-6.94, L_o =170.71)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å



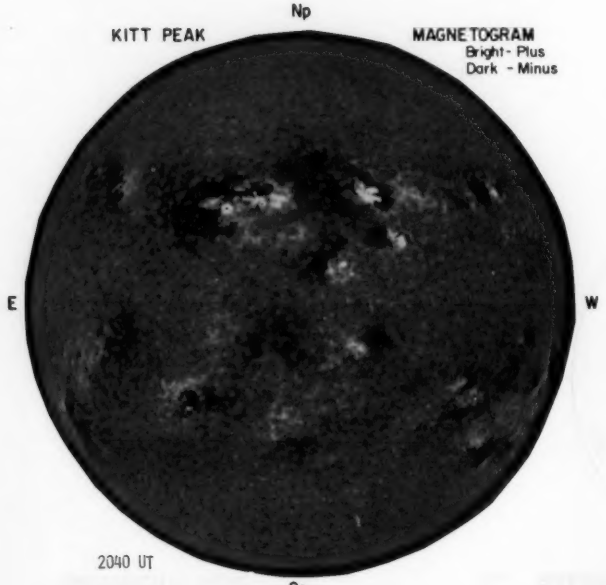
1533 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



2040 UT

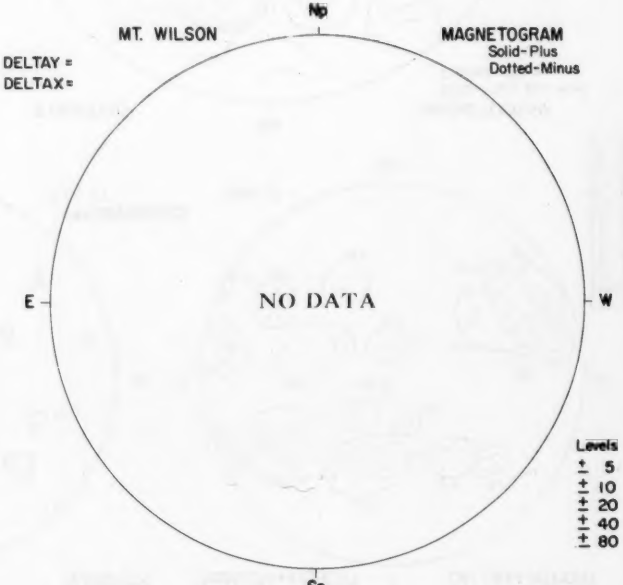
Sp

MT. WILSON

Np

DELTAY =
DELTAX =

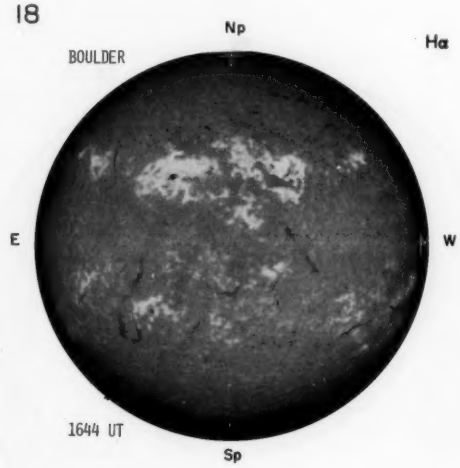
MAGNETOGRAM
Solid - Plus
Dotted - Minus

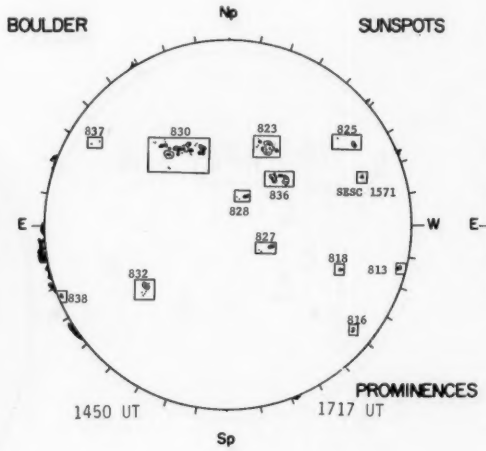


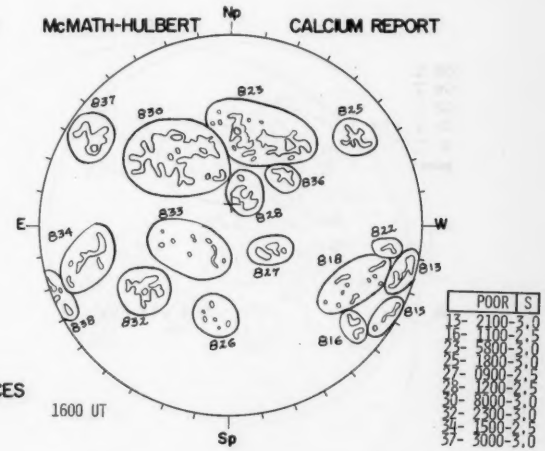
Levels
± 5
± 10
± 20
± 40
± 80

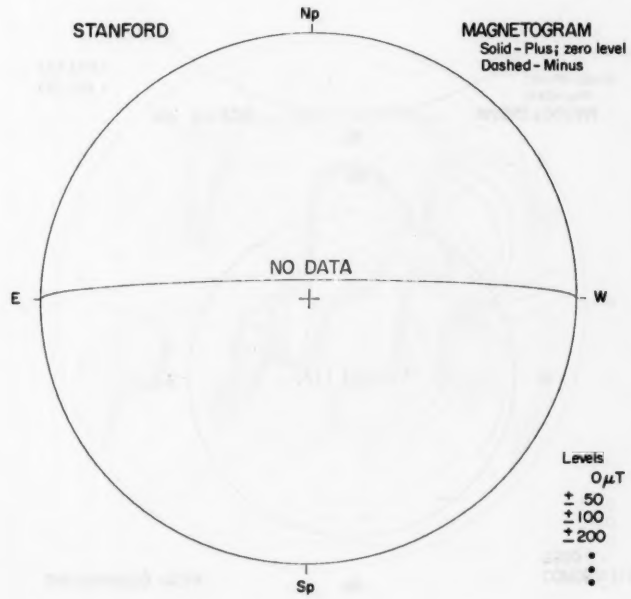
Sp

18


BOULDER
Np
E
W
Sp
1644 UT


Hα
BOULDER
SUNSPOTS
Np
E
W
Sp
837
830
823
825
836
828
SESC 1571
827
818
813
832
838
816
PROMINENCES
1450 UT
1717 UT


McMATH-HULBERT
CALCIUM REPORT
Np
E
W
Sp
837
830
823
825
836
828
833
834
822
818
813
827
832
838
826
816
815
1600 UT
POOR S
13- 2100-3.0
16- 1100-2.5
23- 5800-3.0
25- 1800-3.0
27- 0900-2.5
28- 1200-2.5
30- 8000-3.0
32- 2300-3.0
34- 1500-2.5
37- 3000-3.0

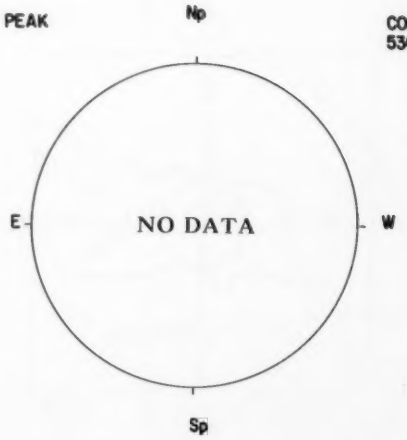

STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
Np
E
W
Sp
NO DATA
Levels
0μT
± 50
± 100
± 200

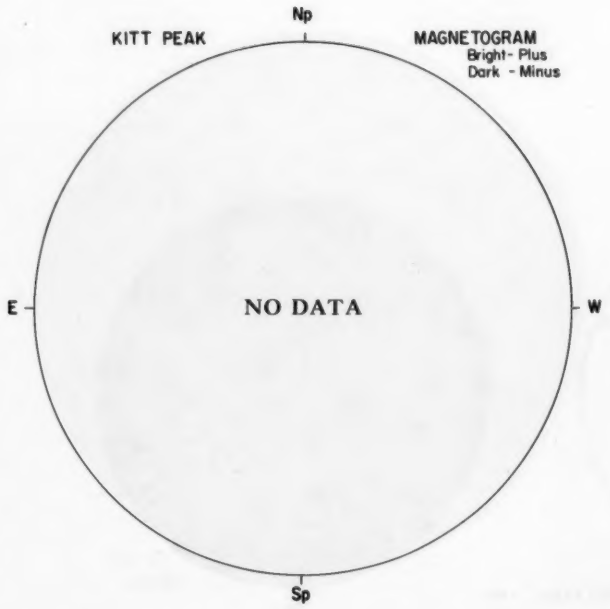
85
Feb 79

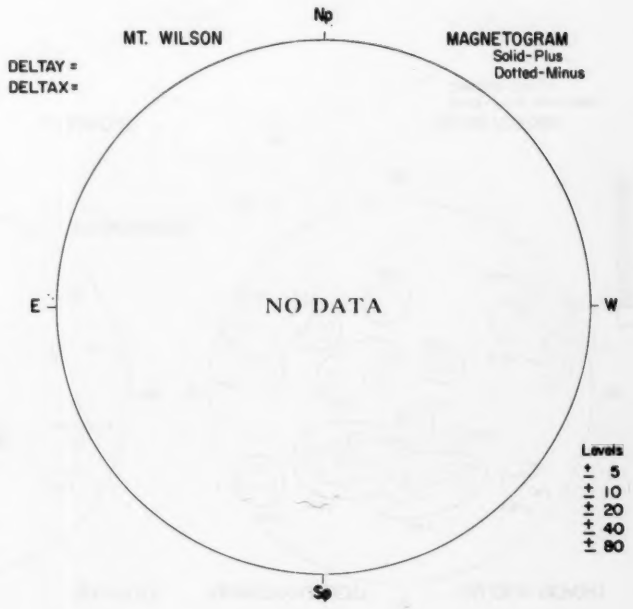
FEBRUARY 19, 1979 (P =-18.55, B_o =-6.98, L_o = 157.55)

SACRAMENTO PEAK

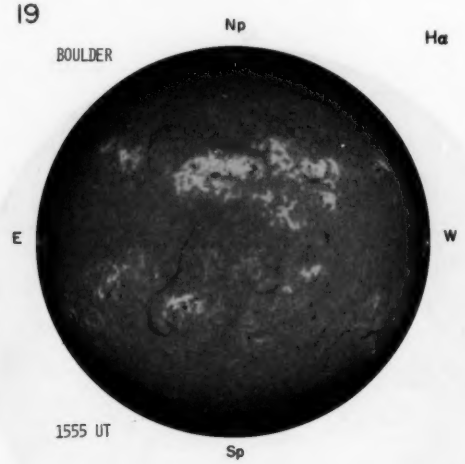
CORONA (1.15 $R_\odot$)
5303 Å

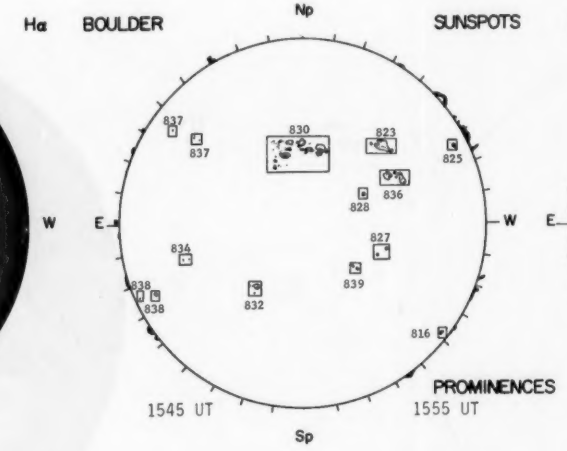


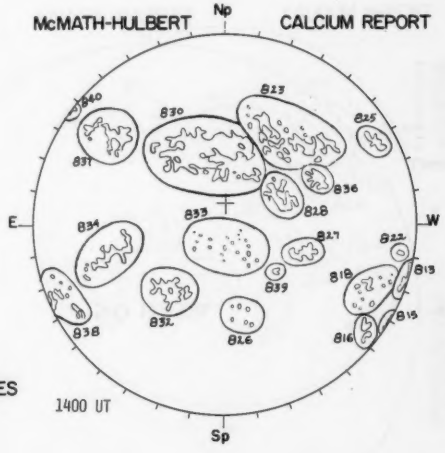




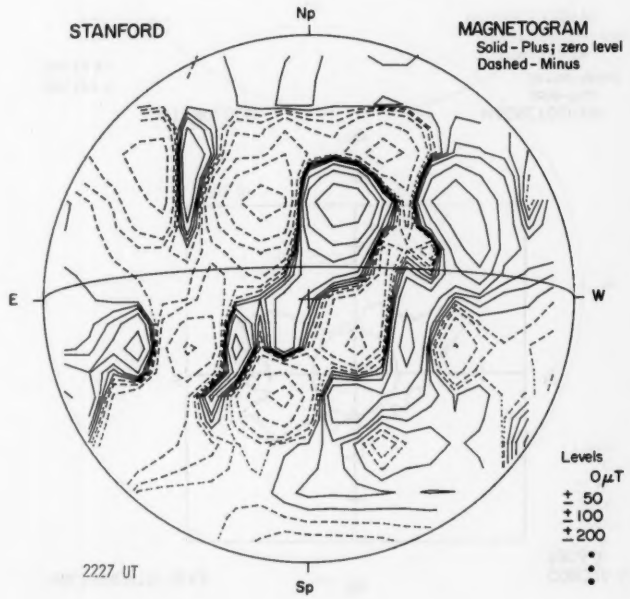
19







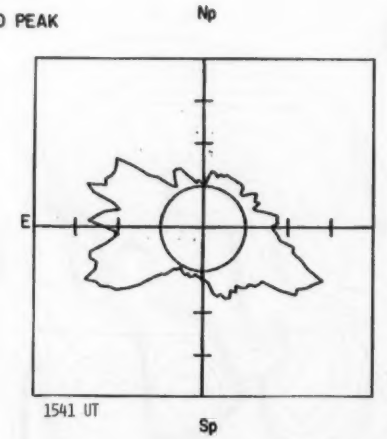
	FAIR	M
16-	1300-	2.5
24-	0200-	3.0
25-	1800-	3.0
27-	0800-	3.0
28-	1300-	2.5
30-	0000-	2.5
32-	2300-	3.0
34-	1800-	3.0
36-	1000-	3.0
37-	2700-	3.0

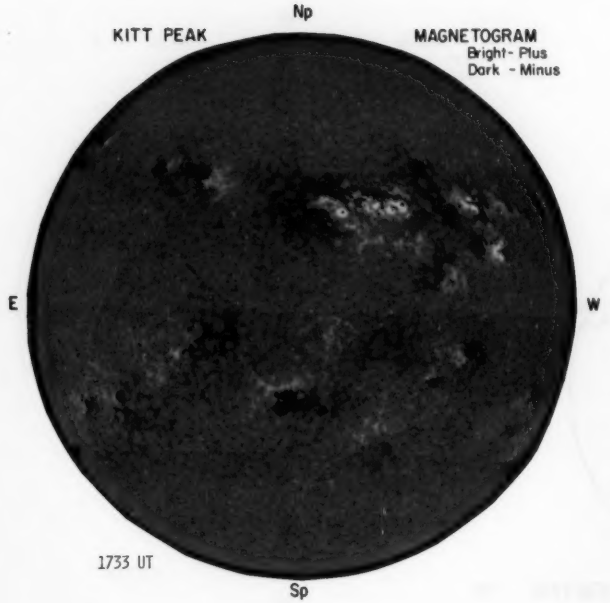


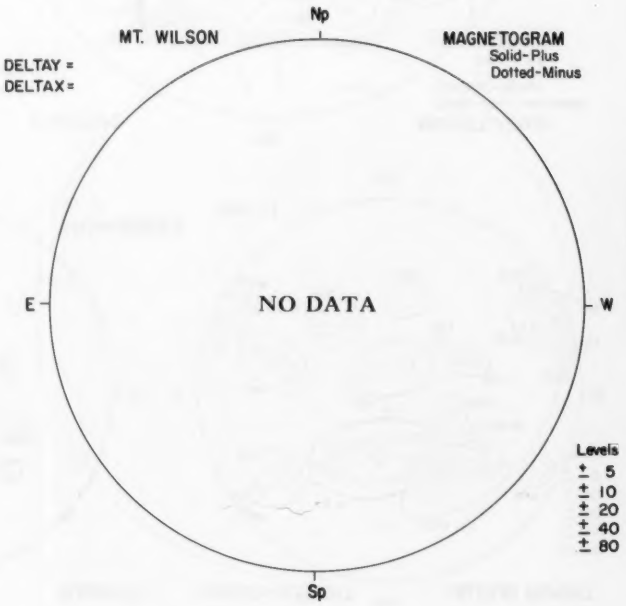
87
Feb 79

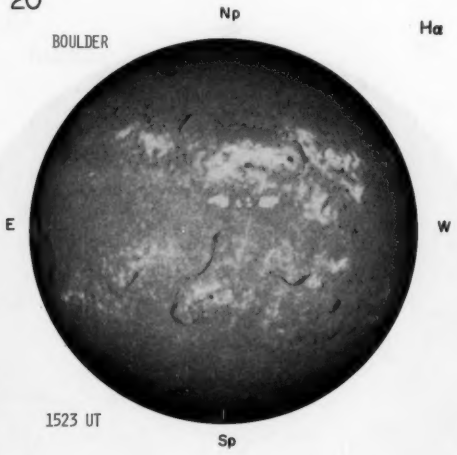
FEBRUARY 20, 1979 (P = -18.87, B_o = -7.01, L_o = 144.38)

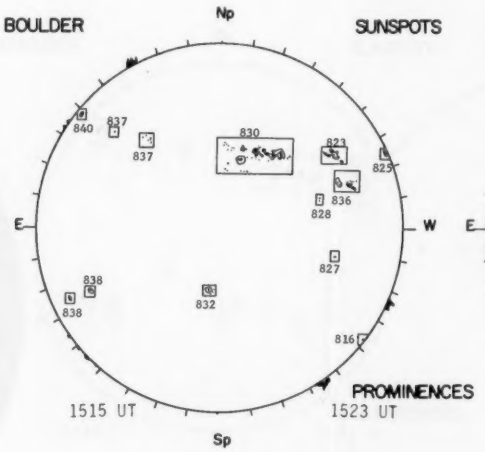
SACRAMENTO PEAK

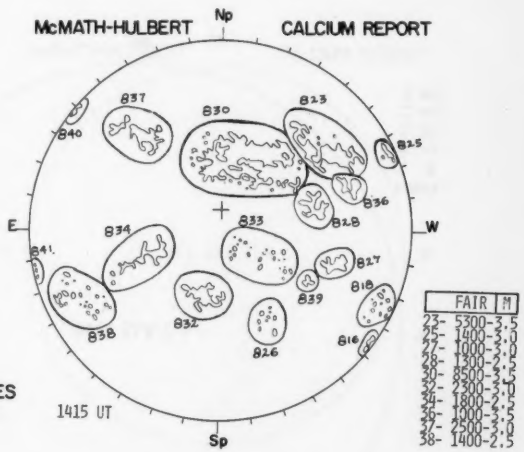




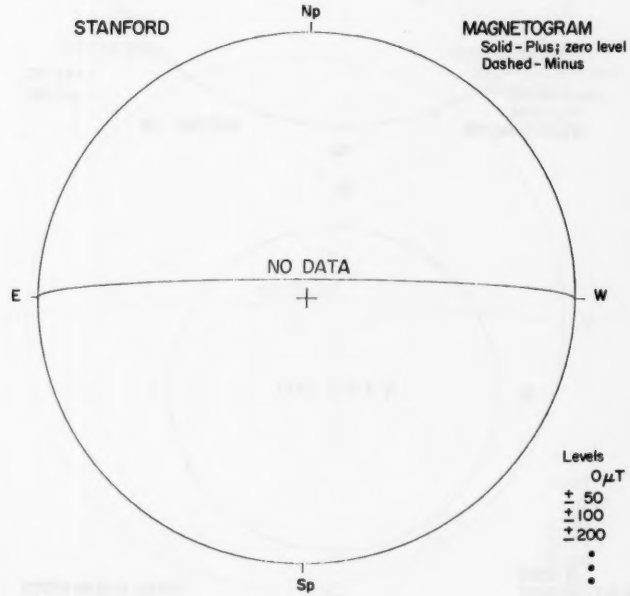








PROMINENCES
1523 UT



FEBRUARY 21, 1979 (P = -19.18, B_0 = -7.04, L = 131.21)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E — NO DATA — W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

W

1722 UT

Sp

MT. WILSON

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

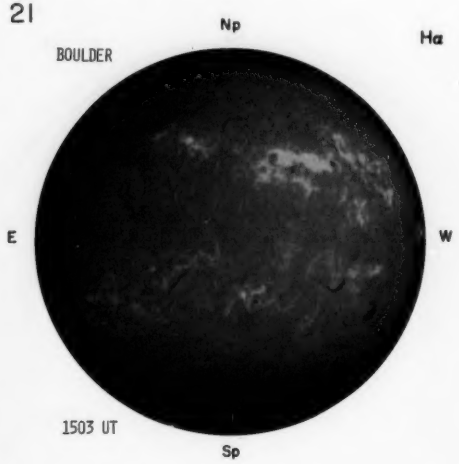
DELTAY =
DELTAX =

E — NO DATA — W

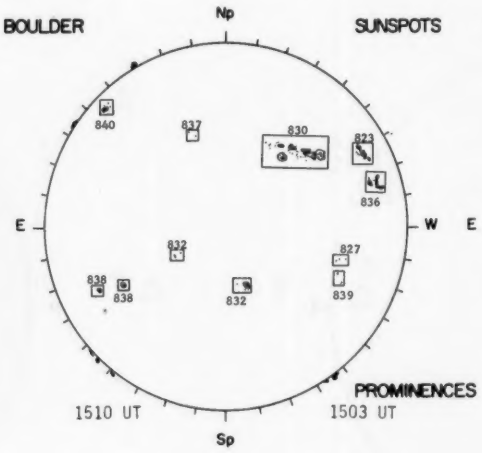
Levels
± 5
± ± 10
± ± ± 20
± ± ± ± 40
± ± ± ± ± 80

Sp

21

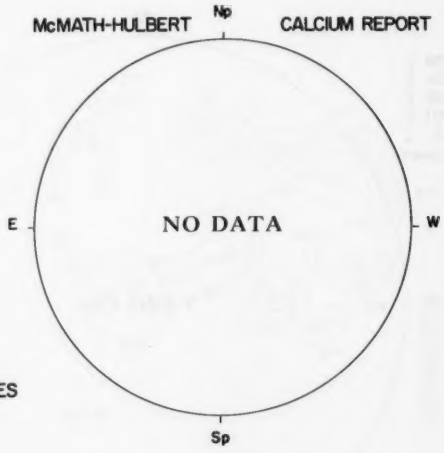


Hα BOULDER



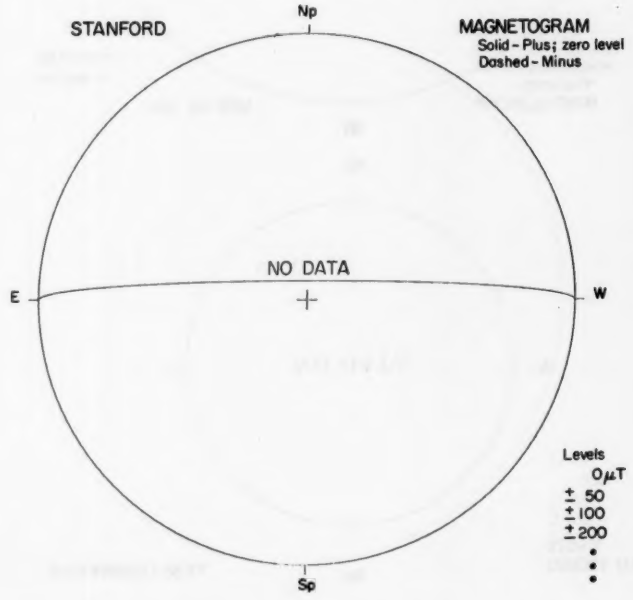
SUNSPOTS

McMATH-HULBERT



CALCIUM REPORT

STANFORD



MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

91
Feb 79

FEBRUARY 22, 1979 (P = -19.48, B_o = -7.07, L_o = 118.04)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

NO DATA

W

Sp

MT. WILSON

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

E

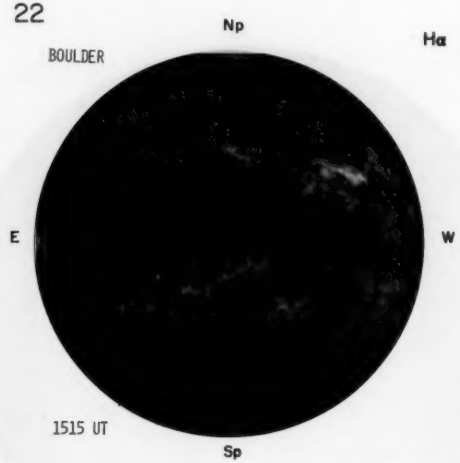
NO DATA

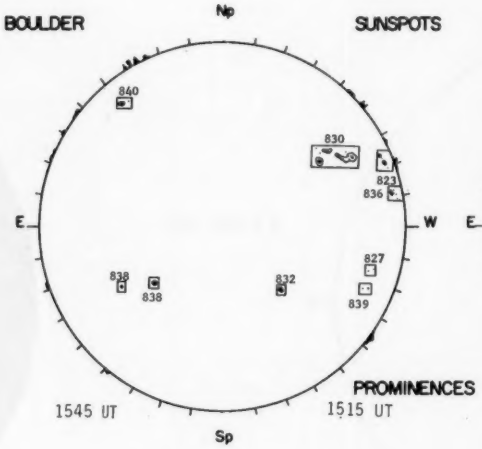
W

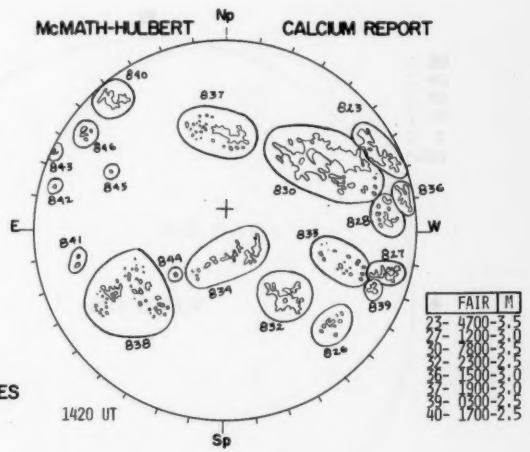
Sp

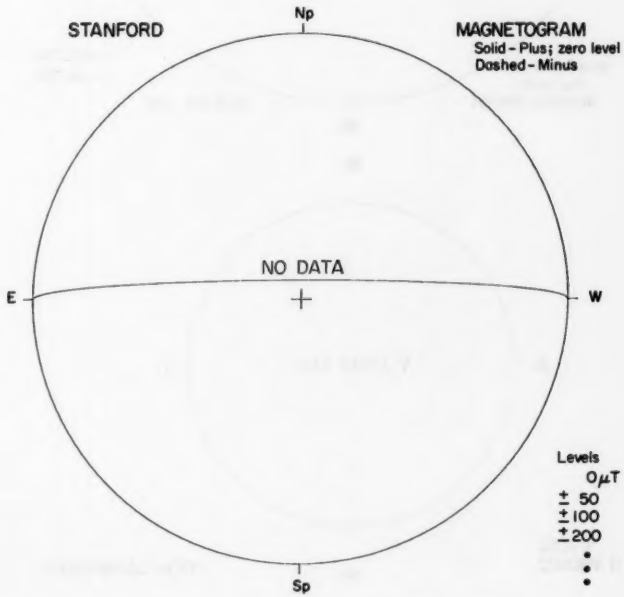
Levels
± 5
± 10
± 20
± 40
± 80

22


Np
BOULDER
Hα
E
W
1515 UT
Sp


Np
BOULDER
SUNSPOTS
840
830
823
836
E
W
838
838
832
827
839
PROMINENCES
1545 UT
1515 UT
Sp

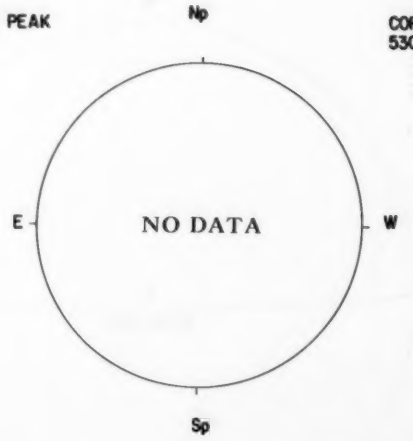

Np
McMATH-HULBERT
CALCIUM REPORT
840
837
823
846
843
845
842
830
836
828
E
W
841
844
833
827
834
839
832
838
826
1420 UT
Sp
FAIR M
23- 4700-3.5
27- 1200-3.0
30- 7800-3.5
32- 2300-2.5
36- 1500-3.0
37- 1900-3.0
39- 0300-2.5
40- 1700-2.5


STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
NO DATA
E
W
Sp
Levels
0μT
± 50
± 100
± 200

FEBRUARY 23, 1979 (P = -19.77, B_o = -7.10, L_o = 104.87)

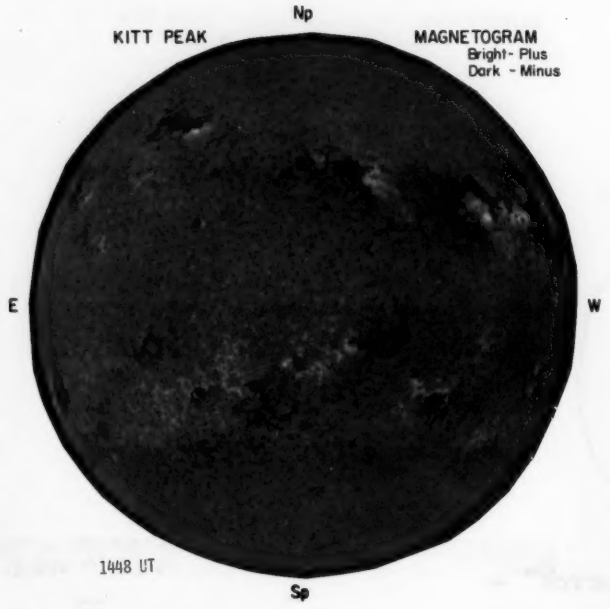
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

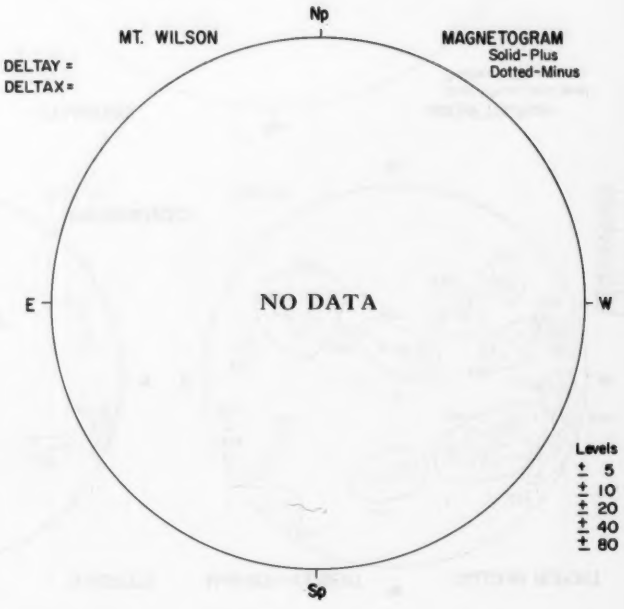


1448 UT

MT. WILSON

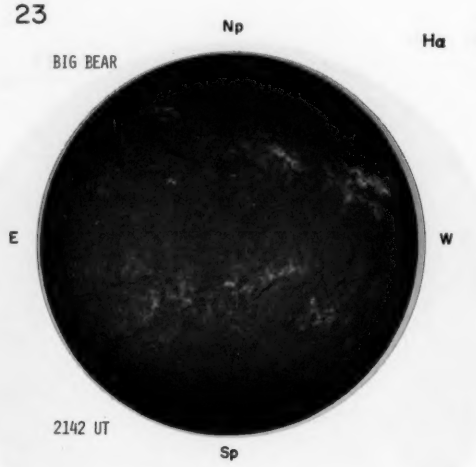
DELTAY =
DELTAX =

MAGNETOGRAM
Solid - Plus
Dotted - Minus

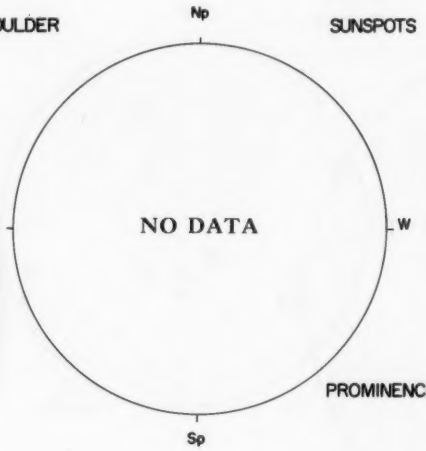


Levels
± 5
± 10
± 20
± 40
± 80

23



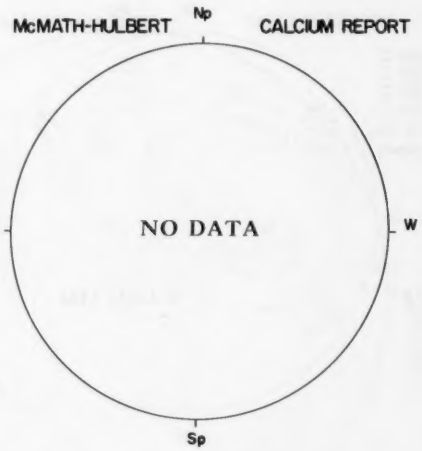
Hα BOULDER



SUNSPOTS

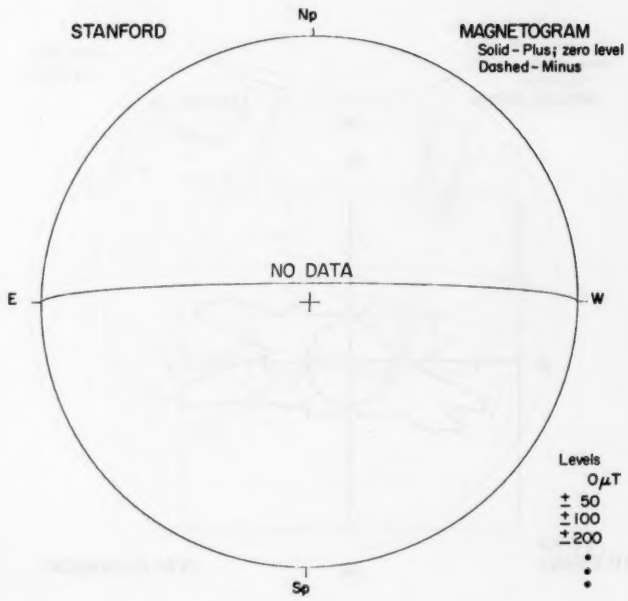
PROMINENCES

McMATH-HULBERT CALCIUM REPORT



STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

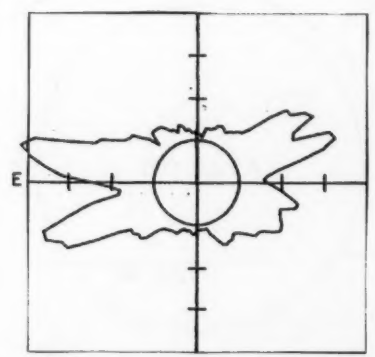


95
Feb 79

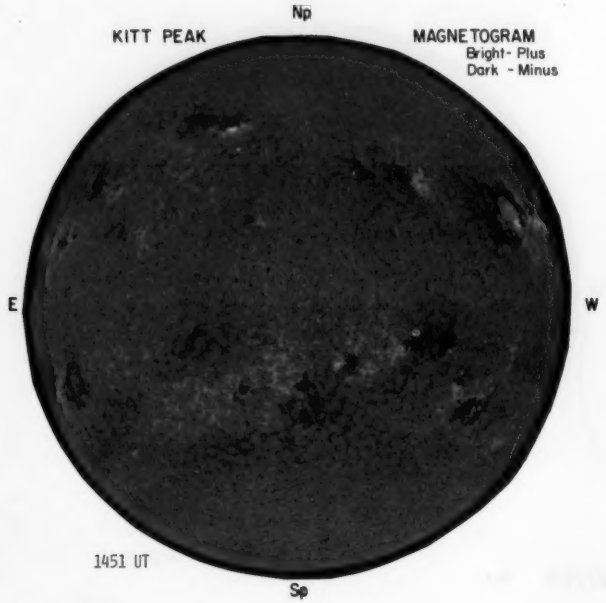
FEBRUARY 24, 1979 (P = -20.06, B_o = -7.12, L_o = 91.70)

SACRAMENTO PEAK

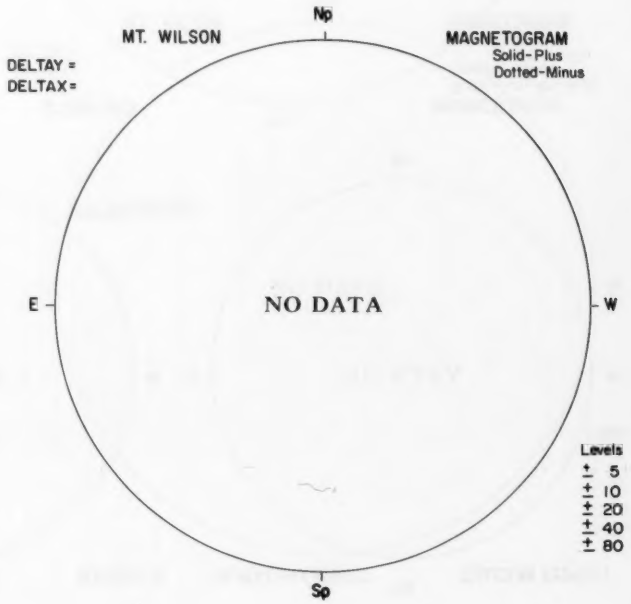
CORONA (1.15 $R_\odot$)
5303 Å

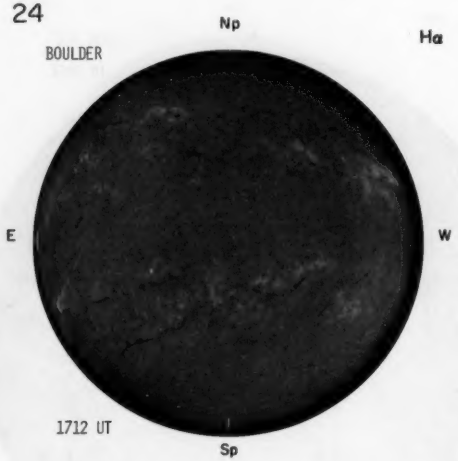


1610 UT

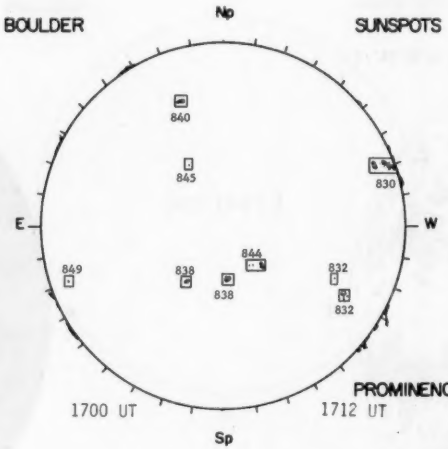


1451 UT

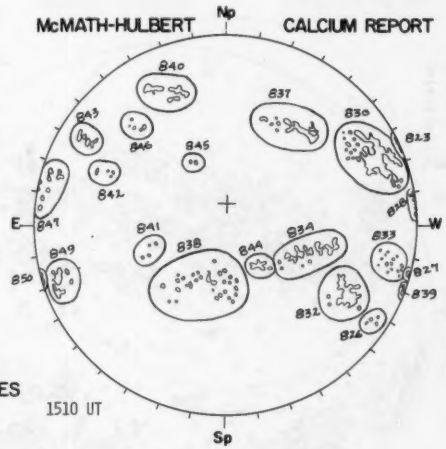




Hα BOULDER SUNSPOTS



McMATH-HULBERT CALCIUM REPORT

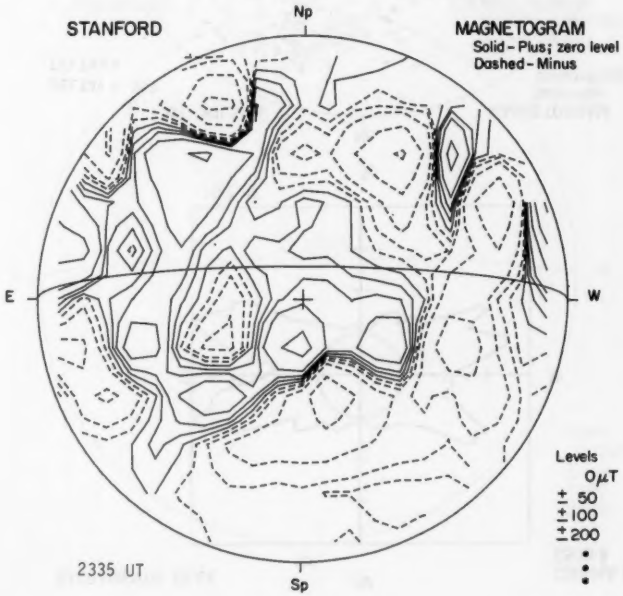


V.	POOR	M
30-	7800-	3.5
32-	2300-	2.5
32-	1400-	3.5
40-	1400-	2.5
49-	2100-	2.5

PROMINENCES

STANFORD MAGNETOGRAM

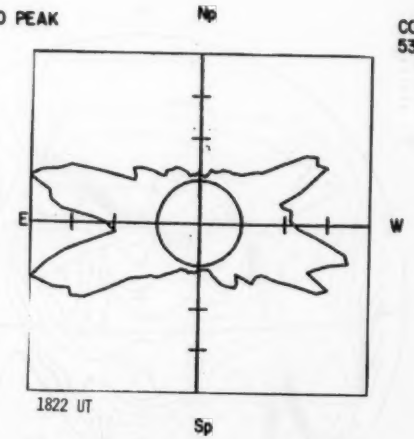
Solid - Plus; zero level
Dashed - Minus

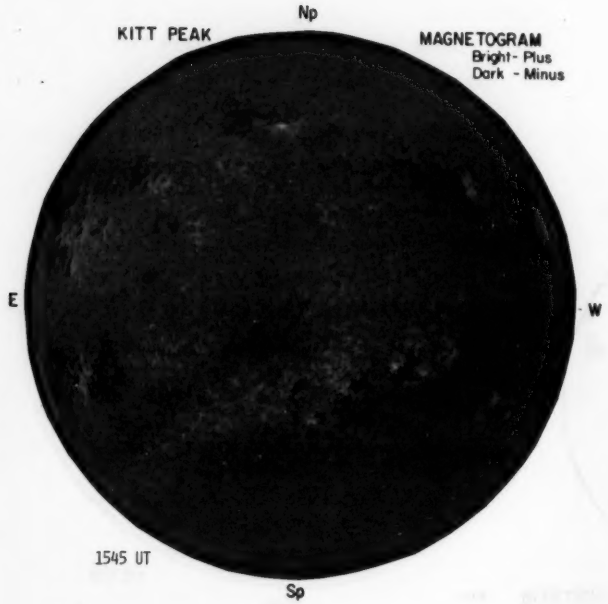


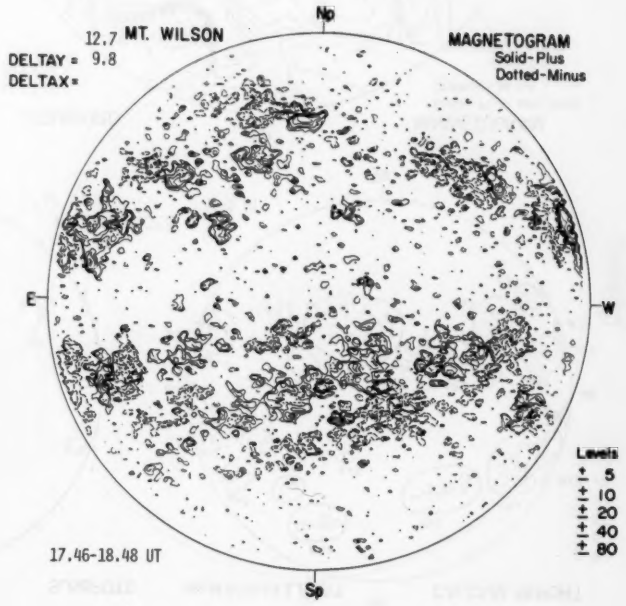
97
Feb 79

FEBRUARY 25, 1979 (P = -20.35, B_o = -7.15, L_o = 78.53)

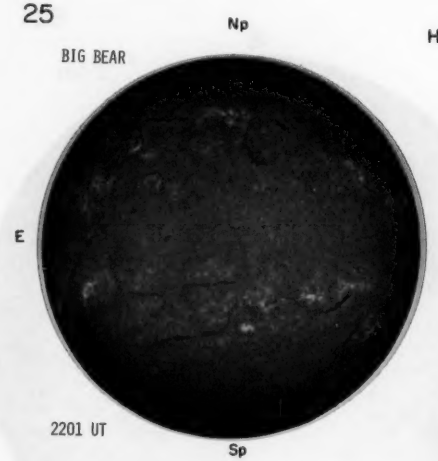
SACRAMENTO PEAK

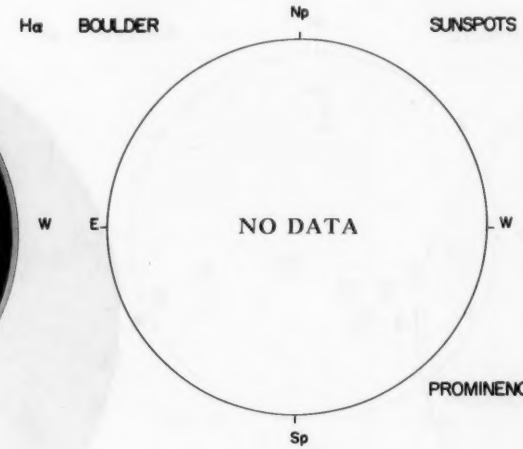


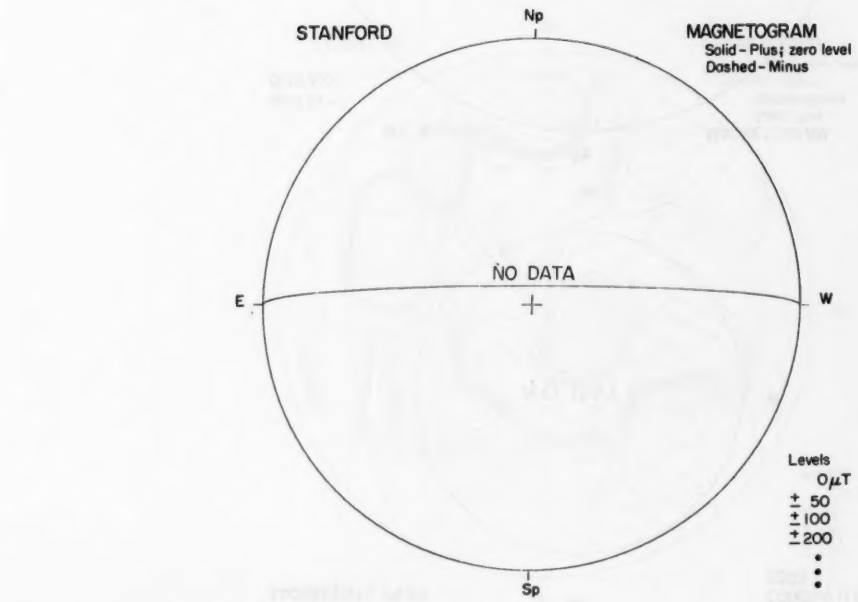




25


Np
BIG BEAR
E
W
2201 UT
Sp

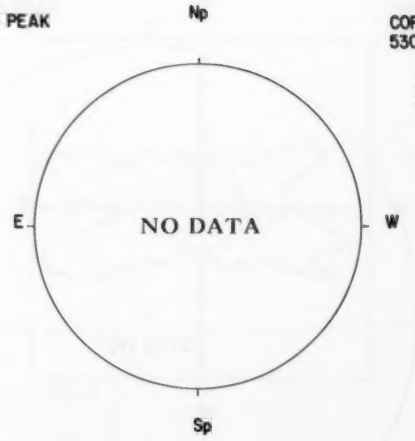

Hα
BOULDER
Np
E
NO DATA
W
Sp


SUNSPOTS
PROMINENCES
McMATH-HULBERT
Np
E
NO DATA
W
Sp
CALCIUM REPORT
STANFORD
Np
NO DATA
E
W
Sp
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
Levels
0 μT
± 50
± 100
± 200

FEBRUARY 26, 1979 (P =-20.63, B_o =-7.17, L_o =65.36)

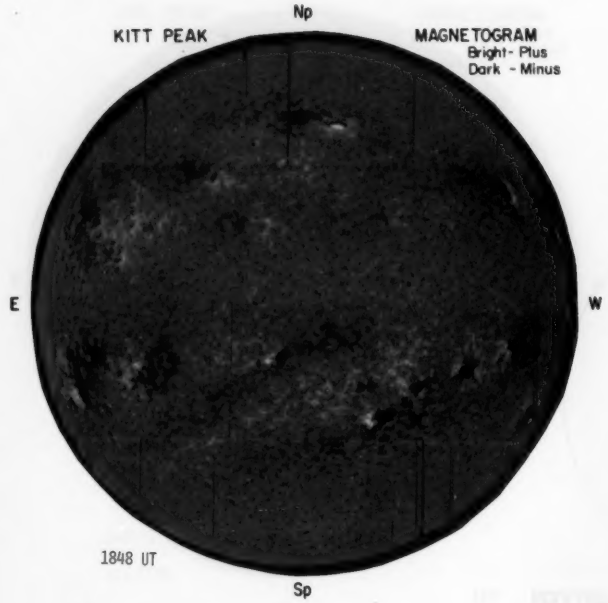
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

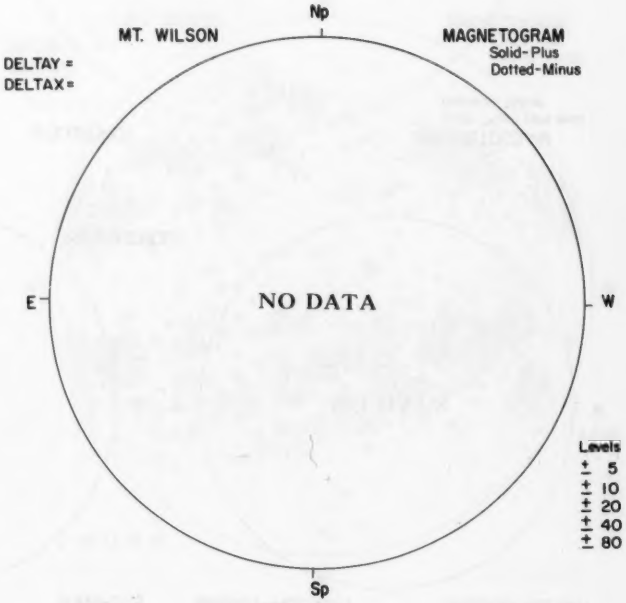
MAGNETOGRAM
Bright- Plus
Dark - Minus



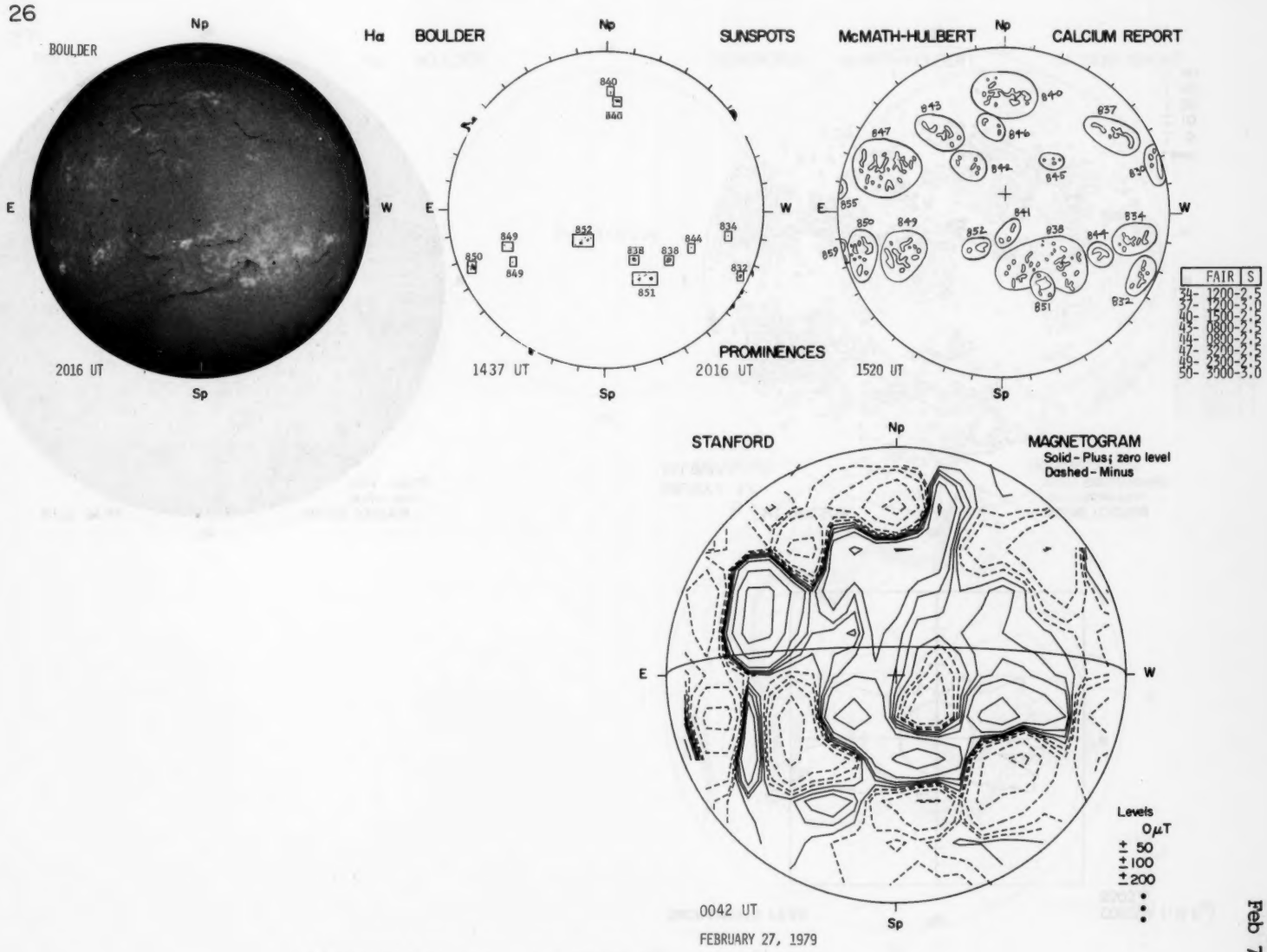
MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus

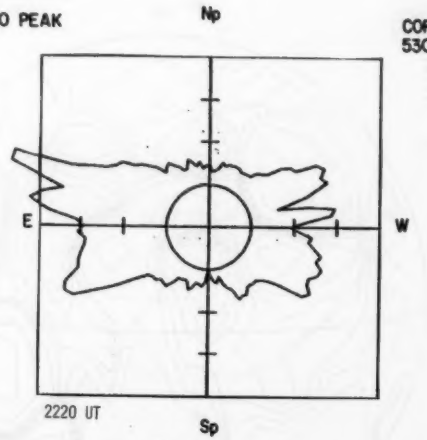


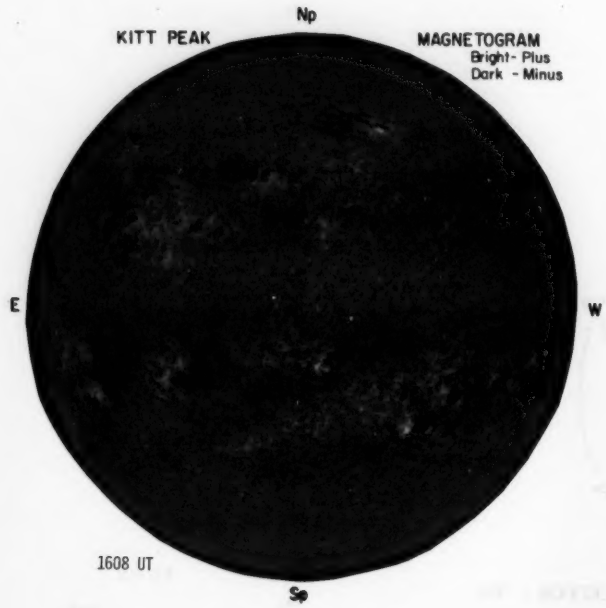
26

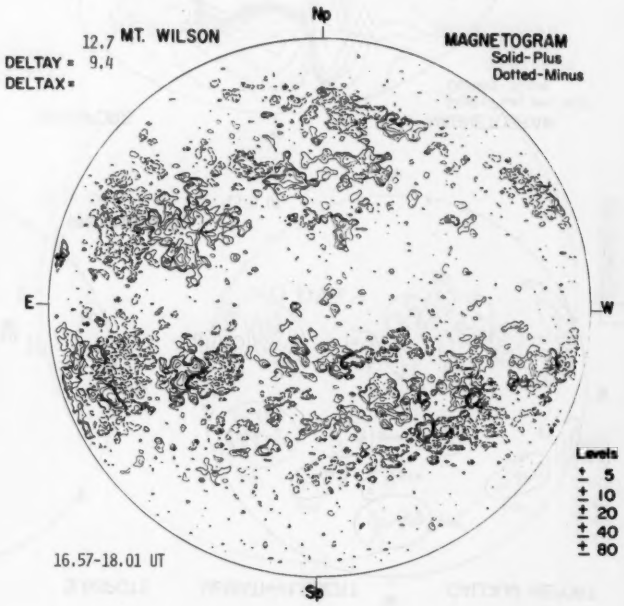

BOULDER
Np
E
W
Sp
2016 UT
Hα
BOULDER
SUNSPOTS
PROMINENCES
1437 UT
2016 UT
McMATH-HULBERT
CALCIUM REPORT
1520 UT
FAIR S
34- 1200-2.5
37- 1200-3.0
40- 1500-2.5
43- 0800-2.5
44- 0800-2.5
47- 3200-2.5
49- 2300-2.5
50- 3000-3.0
STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
Levels
0μT
± 50
± 100
± 200
0042 UT
FEBRUARY 27, 1979

FEBRUARY 27, 1979 (P=-20.90, B_o=-7.18, L_o=52.19)

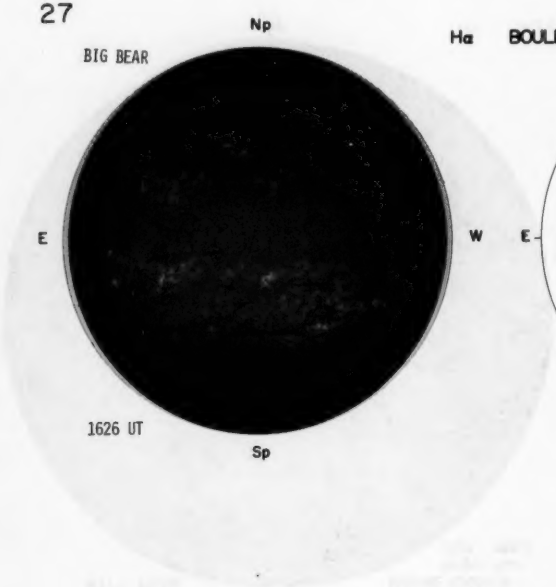
SACRAMENTO PEAK



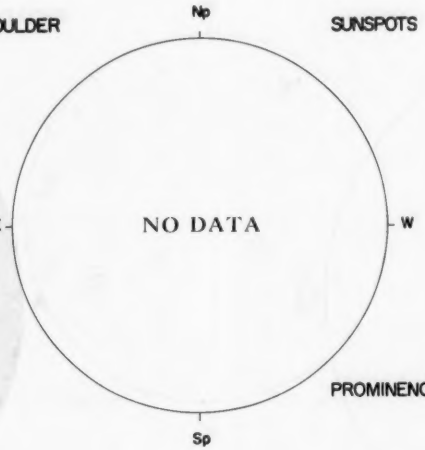




27



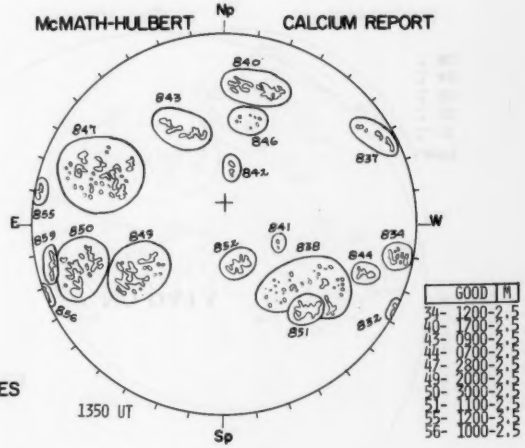
Hα BOULDER



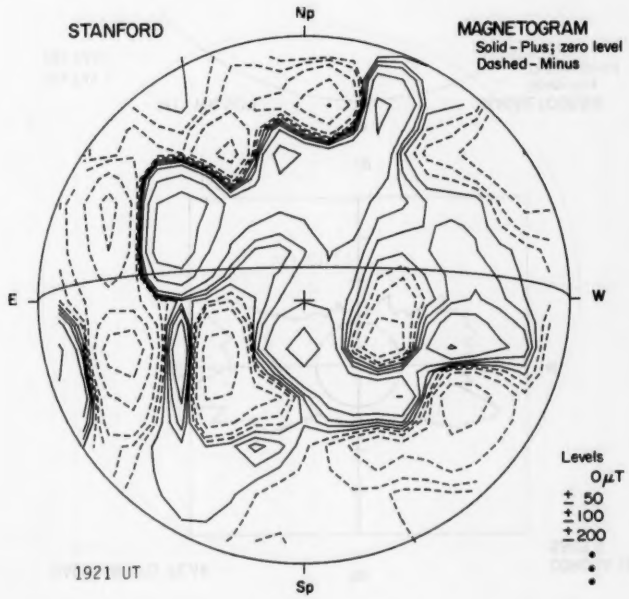
SUNSPOTS

PROMINENCES

McMATH-HULBERT CALCIUM REPORT



STANFORD



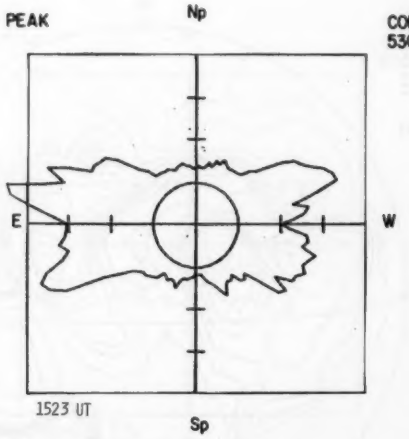
MAGNETOGRAM
Solid – Plus; zero level
Dashed – Minus

103
Feb 79

FEBRUARY 28, 1979 (P = -21.16, B_0 = -7.20, L_0 = 39.01)

SACRAMENTO PEAK

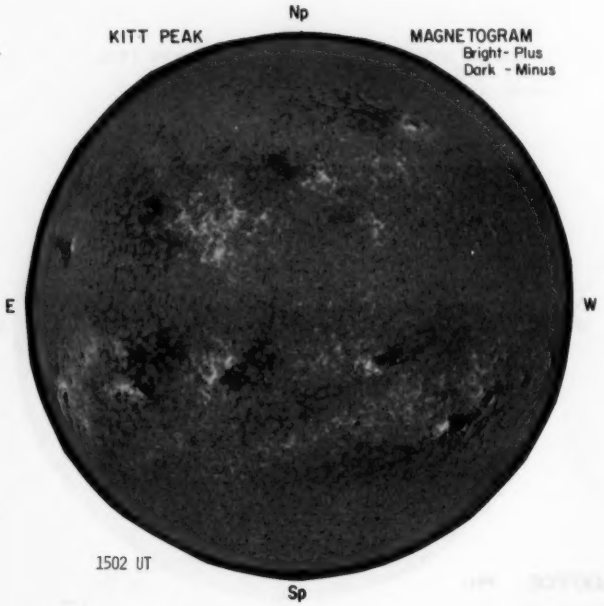
CORONA (1.15 $R_\odot$)
5303 Å



1523 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

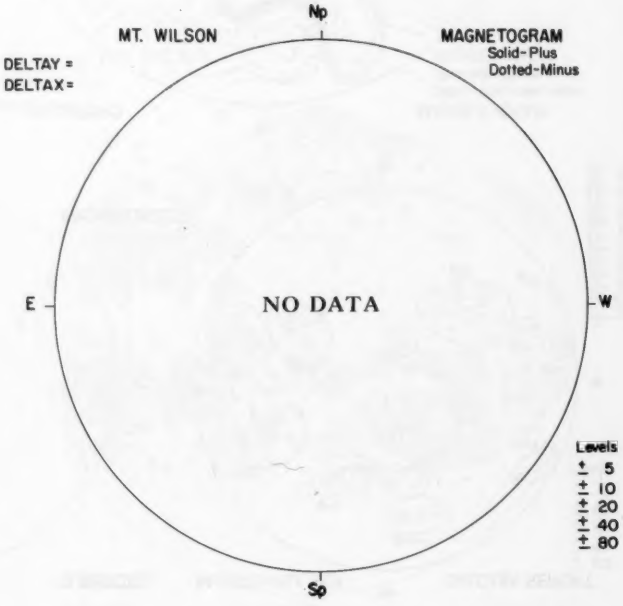


1502 UT

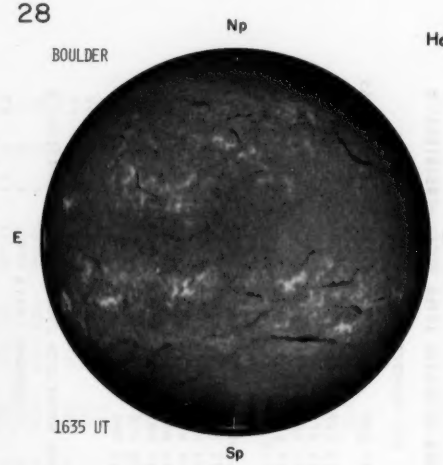
MT. WILSON

DELTAY =
DELTAX =

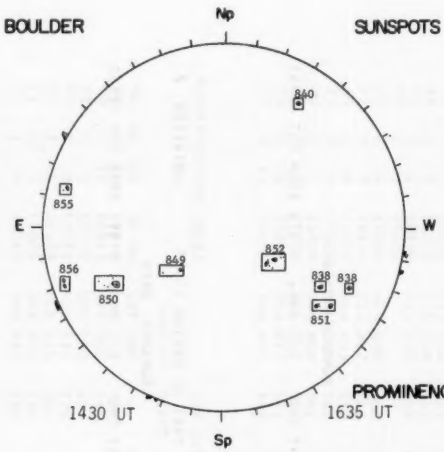
MAGNETOGRAM
Solid - Plus
Dotted - Minus



28

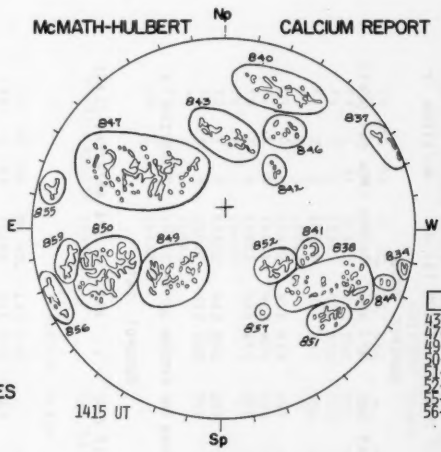


Hα BOULDER SUNSPOTS



PROMINENCES 1635 UT

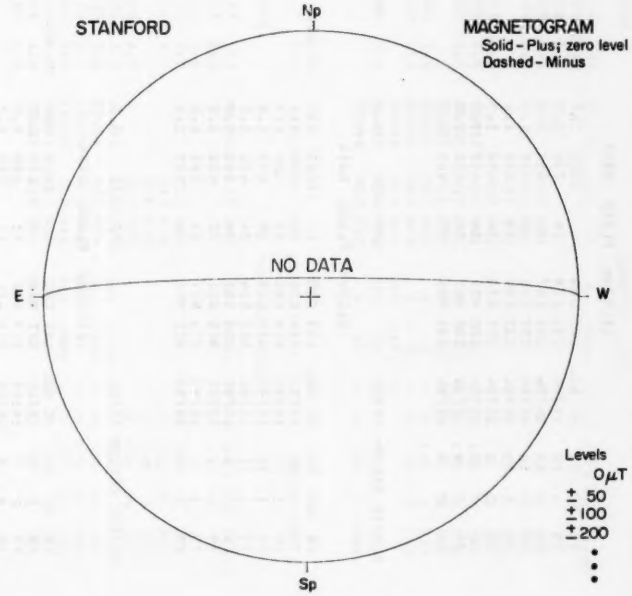
McMATH-HULBERT CALCIUM REPORT



	GOOD	S
43-	1000-	2.5
57-	3000-	2.5
58-	1800-	2.5
59-	3000-	2.5
50-	3000-	3.0
51-	1100-	3.0
52-	0900-	2.5
54-	1400-	3.5
56-	2500-	3.0

STANFORD MAGNETOGRAM

Solid – Plus; zero level
Dashed – Minus



105
Feb 79

REGIONS OF SOLAR ACTIVITY

FEBRUARY 1979

MCMATH REGION 15794 CMP DATE 1.0 RETURN OF PART OF REGION 15740 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	1	26	15794	S33 E78	26	700	1.5								
79	1	27	15794	S32 E67	24	900	2.0								
79	1	30	15794	S32 E20	32	500	1.5								
79	1	31	15794	S32 E05	33	400	1.0								
79	2	1	15794	S32 W08	34	400	1.5								
79	2	2	15794	S32 W23	34	400	1.5								
79	2	4	15794	S32 W49	36	400	1.0								
79	2	5	15794	S31 W61	35	400	1.5								

MCMATH REGION 15793 CMP DATE 1.8 RETURN OF REGION 15745 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	1	26	15793	N18 E78	26	900	1.0								
79	1	27	15793	N19 E64	27	900	1.5								
79	1	30	15793	N20 E27	25	600	1.0								
79	1	31	15793	N20 E14	24	400	1.0								
79	2	1	15793	N20 E02	24	500	1.0								
79	2	2	15793	N20 W11	22	500	1.0								
79	2	4	15793	N21 W37	24	500	1.0								
79	2	5	15793	N22 W50	24	500	1.0								

MCMATH REGION 15814 CMP DATE 3.0

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	2	6	15814	S17 W50	9	100	1.0								
79	2	7	15814	S18 W64	11	100	1.0								
79	2	8	15814	S18 W76	11	300	2.0								

MCMATH REGION 15798 CMP DATE 3.1 RETURN OF PART OF REGION 15740 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	1	30	15798	S35 E42	10	800	1.5								
79	1	31	15798	S35 E30	8	700	2.0								
79	2	1	15798	S35 E18	8	500	2.0								
79	2	2	15798	S35 E05	6	500	1.0								
79	2	4	15798	S35 W27	14	500	1.0								
79	2	5	15798	S35 W40	14	500	1.0								

MCMATH REGION 15796 CMP DATE 3.5 RETURN OF REGION 15766 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	1	27	15796	N18 E87	4	500	1.0								
79	1	28	15796					20430	N19 E72	6	B	3			
79	1		15796					20431	N15 E70	8	AP	3			
79	1	29	15796					20430	N22 E65	0	(BP)	2			
79	1		15796					20431	N15 E56	9	(AP)	2			
79	1	30	15796	N20 E50	2	2400	3.5								
79	1	31	15796	N20 E40	359	2200	3.0								
79	2	1	15796	N20 E25	1	2600	3.5		N19 E27				B	90	5 DAO
79	2	2	15796	N20 E11	0	2400	3.0		N20 E09				B	70	3 DSO
79	2	3	15796						N20 W04				B	10	2 BXO
79	2	4	15796	N20 W15	2	2400	3.0		N20 W16				B	10	2 BXO
79	2	5	15796	N20 W29	3	2500	2.5	20433	N18 W32	6	(B)	3	B	20	3 BXO
79	2	6	15796	N20 W45	4	2200	2.5	20433	N17 W47	8	(B)	2	B	30	2 CRO
79	2	7	15796	N20 W57	4	2300	2.0		N15 W56				B	20	2 BXO
79	2	8	15796	N20 W68	3	1800	2.0		N16 W66				B	0	1 AXX

MCMATH REGION 15802 CMP DATE 3.9 RETURN OF REGION 15749 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	1	2	15802					20432	N08 E80	359	Y	4			
79	1	29	15802					20432	N08 E67	359	(Y)	3			

CONTD

REGIONS OF SOLAR ACTIVITY

FEBRUARY 1979

MCMATH REGION 15802 (CONT) CMP DATE 3.9 RETURN OF REGION 15749 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	30	15802	N13 E59	354	6300	3.5									
79	1	31	15802	N13 E43	356	6500	3.0									
79	2	1	15802	N12 E30	357	7000	3.5		N14 E33				B	10	1	AXX
79	2	2	15802	N12 E16	356	6600	3.5		N13 E14				B	10	3	BXO
79	2	3	15802						N07 W02				B	200	7	DSO
79	2	4	15802	N12 W10	357	6700	3.5		N08 W15				B	130	11	DAI
79	2	5	15802	N12 W24	358	6500	3.0	20432	N07 W28	2	(B)	3	B	160	3	DAO
79	2	6	15802	N12 W40	359	6200	3.0	20432	N07 W41	2	(B)	4	B	210	6	EAO
79	2		15802					20438	N12 W32	353	(B)	3	B	60	5	DAO
79	2	7	15802	N12 W50	357	6500	3.0	20432	N07 W55	2	B	4	B	180	5	EAO
79	2	8	15802	N12 W62	357	6500	3.0	20432	N07 W68	2	(B)	4	B	40	2	ESO
79	2		15802					20444	N13 W65	359	(AP)	2				
79	2	9	15802	N12 W77	358	3000	2.5	20432	N07 W78	359	AP	3				
79	2		15802					20444	N12 W85	6	AP	3	B	30	1	HSX

MCMATH REGION 15804 CMP DATE 5.1 RETURN OF PART OF REGION 15748 ROTATION 4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	30	15804	S14 E70	343	3000	3.0									
79	1	31	15804	S14 E60	339	3000	3.0									
79	2	1	15804	S14 E44	343	3500	3.5		S13 E47				B	340	11	DAI
79	2	2	15804	S14 E32	340	3300	3.5		S13 E33				B	480	27	DKI
79	2	3	15804						S14 E20				B	440	8	DHO
79	2	4	15804	S14 E05	342	4000	3.5		S13 E05				B	560	29	EKI
79	2	5	15804	S14 W07	341	4300	3.5	20434	S13 W07	341	(B)	4	B	590	24	EKI
79	2	6	15804	S14 W23	342	4000	3.0	20434	S13 W21	342	(BP)	4	B	530	36	EKI
79	2	7	15804	S14 W34	341	4300	3.5	20434	S13 W35	342	BP	4	B	370	28	EAI
79	2	8	15804	S14 W46	341	4500	3.5	20434	S13 W48	342	(BP)	3	B	110	13	ESI
79	2	9	15804	S14 W60	341	3800	3.5	20434	S14 W65	346	(AP)	3	B	60	5	DSO
79	2	10	15804	S14 W72	341	3400	3.0	20434	S14 W80	346	AP	3	B	10	1	HSX
79	2	11	15804	S15 W85	340	2100	2.0									

MCMATH REGION 15803 CMP DATE 5.5 RETURN OF REGION 15750 ROTATION 4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	30	15803	N25 E80	333	300	1.0									
79	1	31	15803	N25 E63	336	200	1.0									
79	2	1	15803	N25 E50	337	200	1.0									
79	2	2	15803	N25 E36	336	200	1.0									
79	2	4	15803	N26 E11	336	200	1.5									
79	2	5	15803	N26 W02	336	300	1.5									
79	2	6	15803	N26 W17	336	200	1.0									

MCMATH REGION 15799 CMP DATE 5.5

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	30	15799	S34 E74	339	300	1.0									
79	1	31	15799	S34 E63	336	300	1.0									

MCMATH REGION 15800 CMP DATE 6.3 RETURN OF PART OF REGION 15748 ROTATION 4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	30	15800	S20 E85	328	2500	3.0									
79	1	31	15800	S22 E70	329	3500	3.0									
79	2	1	15800	S19 E59	328	3500	3.0		S18 E63				B	40	2	HSX
79	2	2	15800	S19 E45	327	3500	3.0		S18 E48				B	30	1	HSX
79	2	3	15800						S18 E32				B	0	1	AXX
79	2	4	15800	S19 E21	326	3100	3.0		S21 E21				B	10	5	BXO
79	2	5	15800	S20 E09	325	2900	3.0									
79	2	6	15800	S20 W07	326	2800	2.5	20439	S22 W04	325	B	1	B	0	1	AXX
79	2	7	15800	S20 W18	325	2800	2.5									
79	2	8	15800	S21 W29	324	2500	2.5									
79	2	9	15800	S21 W43	324	2500	2.5									
79	2	10	15800	S21 W56	325	2500	2.5									
79	2	11	15800	S21 W68	323	2100	2.5									
79	2	12	15800	S20 W83	321	2500	2.0									

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MCMATH REGION 15805 CMP DATE 6.8 RETURN OF REGION 15753 ROTATION 2

				CALCIUM	PLAGE	DATA		SUNSPOT	DATA						
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	HW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	1	15805	N18 E70	317	300	1.0									
79	2	2	15805	N17 E57	315	300	1.0									
79	2	4	15805	N17 E30	317	400	2.0									
79	2	5	15805	N18 E17	317	300	2.0									
79	2	6	15805	N17 E00	319	400	1.5									
79	2	7	15805	N18 W10	317	300	1.5									
79	2	8	15805	N18 W22	317	200	1.5									
79	2	9	15805	N18 W36	317	200	1.5									
79	2	10	15805	N17 W50	319	200	1.5									
79	2	11	15805	N17 W63	318	300	1.0									

MCMATH REGION 15811 CMP DATE 8.3 RETURN OF REGION 15756 ROTATION 2

				CALCIUM	PLAGE	DATA		SUNSPOT	DATA						
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	HW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	4	15811	S09 E50	297	200	1.0									
79	2	5	15811	S09 E34	300	200	1.5									
79	2	6	15811	S09 E19	300	300	1.0									
79	2	7	15811	S09 E09	298	200	1.0									
79	2	8	15811	S09 W01	296	200	1.5									
79	2	9	15811	S09 W18	299	100	1.0									
79	2	11	15811	S10 W43	298	100	1.0									
79	2	10	15811	S09 W31	300	100	1.0									
79	2	12	15811	S09 W61	177	100	1.0									

MCMATH REGION 15806 CMP DATE 8.6

				CALCIUM	PLAGE	DATA		SUNSPOT	DATA						
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	HW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	2	15806	N37 E77	295	800	2.5		N37 E81				B	50	1	HSX
79	2	3	15806						N36 E60				B	50	1	HSX
79	2	4	15806	N37 E52	295	1100	2.5		N36 E41				B	50	1	HSX
79	2	5	15806	N37 E39	295	1200	3.5	20435	N34 E32	302	(AP)	3	B	40	1	HRX
79	2	6	15806	N37 E22	297	1200	3.0	20435	N34 E20	301	(AP)	3	B	40	1	HSX
79	2	7	15806	N37 E12	295	1200	3.0									
79	2	8	15806	N36 E00	295	1000	2.5									
79	2	9	15806	N36 W13	294	900	2.0									
79	2	10	15806	N35 W26	295	700	2.0									
79	2	11	15806	N35 W38	293	700	1.5									
79	2	12	15806	N36 W53	291	400	1.5									
79	2	13	15806	N36 W66	292	400	1.5									

MCMATH REGION 15807 CMP DATE 9.1 RETURN OF REGIONS 15754 AND 15773 ROTATIONS 3 AND 2

				CALCIUM	PLAGE	DATA		SUNSPOT	DATA						
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	HW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	2	15807	N16 E80	292	1500	2.0		N14 E60				B	20	1	HSX
79	2	4	15807	N16 E60	287	6000	3.0		N15 E61				B	170	2	HSX
79	2	5	15807	N16 E45	289	6500	3.5	20436	N13 E45	289	(BP)	3	B	140	2	DSO
79	2	6	15807	N17 E27	292	6800	3.5	20436	N13 E32	289	(BP)	4	B	280	11	DHI
79	2		15807					20440	N23 E17	304	(AP)	1				
79	2	7	15807	N17 E18	289	6500	3.0	20436	N14 E20	293	(BP)	4				
79	2		15807					20443	N15 E10	297	AP	4	B	180	12	DKI
79	2	8	15807	N16 E07	288	6500	3.5	20436	N14 E05	289	(BP)	4	B	170	7	EAO
79	2		15807					20443	N15 W05	299	(AP)	3	B	20	4	CAO
79	2		15807					20446	N20 E15	279	(AP)	2				
79	2	9	15807	N16 W08	289	6900	3.5	20436	N15 W08	289	(BP)	4	B	220	30	EAI
79	2	10	15807	N16 W21	290	7200	3.5	20436	N15 W25	291	(Y)	4	B	460	17	DAI
79	2	11	15807	N16 W34	289	7000	3.5	20436	N15 W36	291	(D)	4	M	1090	11	EXX
79	2	12	15807	N16 W49	287	7000	3.5	20436	N15 W50	291	(D)	4				
79	2	13	15807	N16 W64	290	7000	3.5	20436	N15 W64	292	(Y)	4				
79	2	15	15807	N20 W90	290	1200	1.5									

MCMATH REGION 15808 CMP DATE 9.2 RETURN OF PART OF REGION 15757 ROTATION 3

				CALCIUM	PLAGE	DATA		SUNSPOT	DATA						
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	HW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	2	15808	S21 E63	289	1200	2.5		S21 E05				B	160	5	DSO
79	2	3	15808						S21 E72				B	40	3	DSO
79	2	4	15808	S20 E62	285	2200	3.0		S21 E60				B	150	4	DSI

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MCMATH REGION 15808 (CONT) CMP DATE 9.2

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	5	15808	S19 E49	285	2500	3.0	20437	S21 E45	289	(Y)	3	B	310	8	DSC
79	2	6	15808	S20 E31	288	2500	3.5	20437	S20 E32	289	(D)	4	B	310	19	DKI
79	2	7	15808	S20 E20	287	2500	3.5	20437	S20 E20	287	Y	4	B	300	24	DKI
79	2	8	15808	S20 E08	287	2800	3.0	20437	S20 E05	289	(Y)	4	B	260	20	DAI
79	2		15808					20445	S17 E07	287	(B)	2				
79	2	9	15808	S21 W07	288	2500	3.0	20437	S21 W07	288	(Y)	4	B	90	10	DRI
79	2		15808					20445	S17 W05	286	(AP)	3	B	140	11	DSI
79	2	10	15808	S21 W20	289	2500	3.0	20437	S22 W22	288	(B)	3	B	60	10	CSI
79	2		15808					20445	S17 W23	289	(AP)	2				
79	2	11	15808	S20 W33	288	2800	3.0	20437	S23 W32	287	(AP)	2	H	150	15	DSI
79	2		15808					20445	S17 W36	291	(Y)	3	H	10	3	BXO
79	2	12	15808	S20 W48	286	2500	3.0	20437	S23 W46	287	(AP)	2				
79	2		15808					20445	S17 W53	294	(AP)	4				
79	2	13	15808	S20 W63	289	2500	3.0									

MCMATH REGION 15812 CMP DATE 10.1

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	5	15812	S20 E56	278	300	2.0									
79	2	6	15812	S19 E43	276	800	3.0	20441	S20 E44	277	(B)	3	B	100	6	DSI
79	2	7	15812	S19 E33	274	800	3.5	20441	S19 E30	277	BP	4	B	230	13	DKI
79	2	8	15812	S20 E21	274	800	3.0	20441	S19 E18	276	(BP)	5	B	230	8	DSO
79	2	9	15812	S20 E06	275	1300	3.0	20441	S19 E04	277	(BP)	5				
79	2	10	15812	S20 W07	276	1500	3.0	20441	S19 W10	276	(BP)	4	B	180	10	CSI
79	2	11	15812	S20 W19	274	1500	3.0	20441	S20 W21	276	(BP)	4	H	150	16	DSI
79	2	12	15812	S20 W34	272	1700	3.0	20441	S20 W34	275	(AP)	4				
79	2	13	15812	S20 W47	273	1800	3.0	20441	S18 W51	279	(AP)	4				
79	2	15	15812	S20 W73	273	2200	2.5	20441	S18 W79	281	AP	4				
79	2	16	15812	S20 W85	274	1500	2.0									

MCMATH REGION 15810 CMP DATE 11.3 RETURN OF PART OF REGION 15757 ROTATION 3

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	4	15810	S30 E80	267	600	1.5									
79	2	5	15810	S30 E70	264	1000	2.0									
79	2	6	15810	S30 E60	259	1000	1.5									
79	2	7	15810	S29 E50	257	900	1.5									
79	2	8	15810	S30 E37	258	900	1.5									
79	2	9	15810	S30 E22	259	900	1.5									
79	2	10	15810	S31 E09	260	1200	1.5									
79	2	11	15810	S31 W03	258	1300	1.5									
79	2	12	15810	S31 W18	256	1000	1.5									
79	2	13	15810	S31 W31	257	600	1.5									
79	2	15	15810	S32 W56	256	400	1.5									
79	2	16	15810	S32 W68	257	300	1.0									

MCMATH REGION 15817 CMP DATE 11.8 RETURN OF REGION 15759 ROTATION 2

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	6	15817	N30 E75	244	200	1.0									
79	2	7	15817	N30 E58	249	300	1.0									
79	2	8	15817	N29 E45	250	300	1.0									
79	2	9	15817	N28 E30	251	300	1.0									
79	2	10	15817	N28 E17	252	200	1.0									
79	2	11	15817	N28 E02	253	100	1.0									
79	2	12	15817	N28 W16	254	200	2.0									
79	2	13	15817	N28 W28	254	200	1.0									

MCMATH REGION 15815 CMP DATE 12.2 RETURN OF REGION 15761 AND PART OF REGION 15762 ROTATIONS 2 AND 3

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	5	15815	S25 E78	256	2000	1.5									
79	2	6	15815	S28 E65	254	2000	2.0									
79	2	7	15815	S25 E64	243	2300	2.0									
79	2	8	15815	S24 E48	247	2300	2.5									
79	2	9	15815	S25 E34	247	2000	2.0									
79	2	10	15815	S25 E20	249	2300	2.5									

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MCMATH REGION 15815 (CONT) CMP DATE 12.2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	11	15815	S26 E08	247	2300	2.5	20452	S25 E03	252	(AP)	2				
79	2	12	15815	S25 W10	248	2300	2.0									
79	2	13	15815	S26 W21	247	1800	2.0									
79	2	15	15815	S26 W47	247	1700	2.5									
79	2	16	15815	S26 W58	247	1200	2.5									
79	2	17	15815	S26 W65	240	1300	2.0									
79	2	18	15815	S28 W75	237	1200	1.0									
79	2	19	15815	S29 W87	237	500	1.0									

MCMATH REGION 15813 CMP DATE 13.2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	6	15813	S18 E86	233	1200	2.5	20442	S17 E80	241	B	4	B	50	2	HSX
79	2	7	15813	S17 E75	232	2000	3.0	20442	S17 E70	237	Y	4	B	130	4	DSO
79	2	8	15813	S16 E63	232	3000	3.0	20442	S17 E56	238	(Y)	4	B	160	8	DSO
79	2	9	15813	S18 E48	233	2700	2.5	20442	S18 E42	239	(Y)	4	B	100	6	DSO
79	2	10	15813	S18 E33	236	3000	3.0	20442	S18 E28	238	(B)	4	B	200	6	EHO
79	2		15813					20449	S14 E24	242	(AP)	3				
79	2	11	15813	S19 E21	234	2800	3.0	20442	S18 E17	238	(Y)	4	M	160	25	EHO
79	2		15813					20449	S14 E13	242	(B)	3	M	150	18	EHO
79	2	12	15813	S19 E05	233	2000	2.5	20442	S16 E02	239	BF	4				
79	2		15813					20449	S14 E00	241	(B)	3				
79	2	13	15813	S17 W11	237	2000	2.5	20442	S16 W12	240	(AF)	4				
79	2		15813					20449	S14 W13	241	(B)	3				
79	2	15	15813	S17 W37	237	1900	3.0	20442	S18 W37	239	(AF)	3				
79	2	16	15813	S17 W49	238	1900	3.0									
79	2	17	15813	S17 W62	237	1900	3.0	20442	S17 W65	240	(AF)	3				
79	2	18	15813	S17 W74	236	2100	3.0	20442	S16 W78	240	AP	3				
79	2	19	15813	S17 W86	236	2100	1.5									

MCMATH REGION 15835 CMP DATE 13.4

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	15	15835	N13 W31	231	100	1.0									
79	2	16	15835	N13 W44	233	100	2.0									

MCMATH REGION 15816 CMP DATE 14.0

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	7	15816	S34 E88	219	300	2.0									
79	2	8	15816	S34 E77	218	600	2.0	20447	S35 E68	226	(AP)	3	B	10	2	BXO
79	2	9	15816	S35 E63	218	600	3.0	20447	S36 E54	227	(AP)	3	B	20	1	HRX
79	2	10	15816	S34 E45	224	1200	3.0	20447	S37 E40	226	(BP)	4	B	130	3	CHO
79	2	11	15816	S34 E32	223	1200	2.5	20447	S37 E29	226	(BP)	4	M	150	8	DSO
79	2	12	15816	S35 E16	222	1200	3.0	20447	S37 E17	224	(BP)	4				
79	2	13	15816	S35 E03	223	1200	2.5	20447	S37 E04	224	(BP)	4				
79	2	15	15816	S36 W21	221	1200	2.5	20447	S37 W20	222	(BP)	4				
79	2	16	15816	S36 W33	222	1100	2.5									
79	2	17	15816	S36 W45	220	1100	2.5	20447	S39 W49	224	(AP)	4				
79	2	18	15816	S36 W55	217	1100	2.5	20447	S39 W62	224	(AP)	3				
79	2	19	15816	S36 W67	217	1300	2.5									
79	2	20	15816	S36 W80	217	1300	2.0									

MCMATH REGION 15822 CMP DATE 14.3

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	11	15822	S09 E37	218	200	2.0	20453	S10 E37	218	(B)	2	M	10	2	BXO
79	2	12	15822	S10 E21	217	200	2.0	20453	S10 E22	219	B	2				
79	2	13	15822	S10 E07	219	400	2.5	20453	S12 E11	217	AP	1				
79	2	15	15822	S10 W19	219	300	2.5									
79	2	16	15822	S10 W31	220	200	2.0									
79	2	17	15822	S10 W44	219	400	1.5									
79	2	18	15822	S10 W57	219	400	1.5									
79	2	19	15822	S11 W69	219	300	1.5									

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MCMATH REGION 15820 CMP DATE 14.5 RETURN OF REGION 15768 ROTATION 6

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	2	8	15820					
79	2	9	15820	N13	E68	213	300	1.5
79	2	10	15820	N12	E52	217	400	1.0
79	2	11	15820	N13	E35	220	300	1.0
79	2	12	15820	N12	E20	218	400	1.0
79	2	13	15820	N12	E10	216	400	1.0
79	2	15	15820	N13	W15	215	400	1.0
79	2	16	15820	N13	W27	216	200	1.0
79	2	17	15820					
79	2	18	15820					

SUNSPOT DATA

NW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20448	N11	E80	214	X	3	B	10	1	HRX
20448	N11	E67	214	AP	4	B	30	1	HSX
20448	N11	E53	213	(AP)	4	B	50	1	HSX
20448	N11	E42	213	(AP)	3				
20448	N11	E29	212	(AP)	4				
20448	N10	E15	213	(AP)	4				
20448	N11	W11	213	(AP)	4				
20448	N11	W36	211	(AP)	3				
20448	N11	W49	211	(AP)	3				

MCMATH REGION 15818 CMP DATE 15.0 RETURN OF REGION 15767 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	2	8	15818	S24	E87	208	900	1.0
79	2	9	15818	S24	E73	208	1000	2.0
79	2	10	15818	S24	E56	213	1500	2.5
79	2	11	15818	S24	E43	212	1600	2.5
79	2	12	15818	S24	E28	210	1400	2.0
79	2	13	15818	S24	E15	211	1400	2.0
79	2	15	15818	S24	W10	210	1200	2.5
79	2	16	15818	S24	W22	211	1200	2.5
79	2	17	15818	S24	W35	210	1400	2.0
79	2	18	15818	S24	W47	209	1500	2.0
79	2	19	15818	S25	W59	209	1200	2.0
79	2	20	15818	S25	W72	209	1200	2.0

SUNSPOT DATA

NW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20450	S22	E44	222	(B)	2	B	40	2	BXO
20450	S23	E34	221	(B)	1	H	50	7	BXO
20456	S27	E29	212	(B)	2				
20462	S22	W27	202	(B)	3				
20462	S21	W42	204	(AP)	2				

MCMATH REGION 15825 CMP DATE 15.2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	2	12	15825	N22	E32	206	200	2.5
79	2	13	15825	N22	E18	208	400	3.0
79	2	15	15825	N22	W07	207	1400	3.0
79	2	16	15825	N23	W19	208	1500	3.5
79	2	17	15825	N23	W32	207	1600	3.0
79	2	18	15825	N23	W45	207	1800	3.0
79	2	19	15825	N23	W57	207	1800	3.0
79	2	20	15825	N24	W70	207	1400	3.0

SUNSPOT DATA

NW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20455	N21	E32	209	(B)	2				
20455	N22	E19	209	(B)	4				
20455	N21	W06	208	(B)	4				
20455	N21	W32	207	(B)	4				
20455	N21	W46	208	(BP)	4				

MCMATH REGION 15819 CMP DATE 16.1

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	2	9	15819	N16	E88	193	500	2.0
79	2	10	15819	N17	E70	199	600	2.0
79	2	11	15819	N18	E58	197	600	2.0
79	2	12	15819	N18	E43	195	700	1.5
79	2	13	15819	N18	E26	200	800	2.0
79	2	15	15819	N18	E04	196	600	2.0
79	2	16	15819	N18	W09	198	500	2.0
79	2	17	15819	N18	W20	195	300	1.5

SUNSPOT DATA

NW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20451	N17	E65	201	AP	2	B	10	1	AXX
20451	N17	E53	202	(AP)	2	H	40	1	HSX

MCMATH REGION 15836 CMP DATE 17.3

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	2	16	15836	N09	E09	180	200	2.5
79	2	17	15836	N08	W04	179	700	2.5
79	2	18	15836	N08	W17	179	800	2.0
79	2	19	15836	N08	W29	179	1000	3.0
79	2	20	15836	N08	W43	180	1000	3.5
79	2	22	15836	N08	W70	180	1500	3.0

SUNSPOT DATA

NW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20465	N08	W04	179	(B)	4				
20465	N08	W17	179	(B)	4				

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MCMATH REGION 15823 CMP DATE 17.8 RETURN OF REGION 15772 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	11	15823	N20 E83	172	2200	2.0	20454	N20 E80	175	(X)	4	M	280	2	EHO
79	2	12	15823	N20 E68	170	3800	3.0	20454	N19 E70	311	(B)	4				
79	2	13	15823	N19 E53	173	4100	3.0	20454	N19 E58	170	(B)	4				
79	2	15	15823	N20 E27	173	4500	3.0	20454	N19 E30	172	(BP)	4				
79	2	16	15823	N19 E17	172	5300	3.0									
79	2	17	15823	N19 E03	172	5800	3.0	20454	N18 E02	173	(D)	4				
79	2	18	15823	N19 W11	173	5800	3.0	20454	N18 W14	176	(D)	4				
79	2	19	15823	N19 W23	173	5200	3.0									
79	2	20	15823	N19 W36	173	5300	3.5									
79	2	22	15823	N20 W61	171	4700	3.5									
79	2	24	15823	N24 W90	173	1000	1.5									

MCMATH REGION 15827 CMP DATE 17.8

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	12	15827	S16 E67	171	400	2.5									
79	2	13	15827	S16 E53	173	800	2.5	20459	S17 E54	174	(B)	3				
79	2	15	15827	S15 E27	173	1100	3.0	20459	S15 E28	174	(B)	3				
79	2	16	15827	S15 E14	175	1100	2.5									
79	2	17	15827	S15 E02	173	1200	3.0	20459	S16 E01	174	(BP)	4				
79	2	18	15827	S15 W11	173	900	2.5	20459	S16 W13	175	(BP)	3				
79	2	19	15827	S15 W24	174	900	3.0									
79	2	20	15827	S15 W37	174	1000	3.0									
79	2	22	15827	S15 W63	173	1200	3.0									
79	2	24	15827	S15 W90	173	400	1.5									

MCMATH REGION 15828 CMP DATE 18.4

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	12	15828	N04 E77	161	1100	3.5	20457	N02 E75	166	X	3				
79	2	13	15828	N04 E63	163	1300	3.5	20457	N02 E61	167	(BP)	2				
79	2	15	15828	N04 E37	163	1400	3.0	20457	N02 E35	167	(BP)	4				
79	2	16	15828	N04 E25	164	1700	3.0									
79	2	17	15828	N04 E11	164	1400	3.0	20457	N02 E09	166	(BP)	4				
79	2	18	15828	N03 W03	165	1200	2.5	20457	N02 W06	168	(AP)	3				
79	2	19	15828	N03 W16	166	1300	2.5									
79	2	20	15828	N03 W29	166	1300	2.5									
79	2	22	15828	N03 W56	166	900	2.0									
79	2	24	15828	N04 W83	166	600	1.0									

MCMATH REGION 15839 CMP DATE 18.4

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	19	15839	S21 W16	166	100	2.0									
79	2	20	15839	S21 W29	166	300	2.0									
79	2	22	15839	S22 W56	166	300	2.5									
79	2	24	15839	S21 W82	165	400	1.5									

MCMATH REGION 15826 CMP DATE 19.1 RETURN OF REGION 15783 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	12	15826	S34 E75	163	500	1.5									
79	2	13	15826	S35 E62	164	500	1.0									
79	2	15	15826	S35 E42	158	700	1.0									
79	2	16	15826	S35 E30	159	600	1.5									
79	2	17	15826	S34 E18	157	400	1.0									
79	2	18	15826	S34 E06	156	300	1.0									
79	2	19	15826	S34 W06	156	300	1.0									
79	2	20	15826	S34 W18	155	300	1.5									
79	2	22	15826	S34 W44	154	300	1.0									
79	2	24	15826	S34 W70	153	200	1.0									

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MCMATH REGION 15833 CMP DATE 19.6 RETURN OF REGION 15778 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	2	13	15833	S14 E72	154	400	1.0
79	2	15	15833	S15 E48	152	400	1.0
79	2	16	15833	S15 E36	153	500	1.0
79	2	17	15833	S14 E24	151	600	1.0
79	2	18	15833	S13 E12	150	500	1.0
79	2	19	15833	S13 E00	150	500	1.0
79	2	20	15833	S14 W13	150	600	1.0
79	2	22	15833	S15 W39	149	600	1.0
79	2	24	15833	S15 W65	148	600	1.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS

MCMATH REGION 15830 CMP DATE 20.1 RETURN OF REGION 15777 ROTATION 4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	2	13	15830	N15 E85	141	4000	2.5
79	2	15	15830	N14 E58	142	7200	3.5
79	2	16	15830	N14 E45	144	8000	3.5
79	2	17	15830	N15 E33	142	7600	3.0
79	2	18	15830	N15 E19	143	8000	3.0
79	2	19	15830	N15 E07	143	8000	3.5
79	2	20	15830	N15 W07	144	8500	3.5
79	2	22	15830	N15 W33	143	7800	3.5
79	2	24	15830	N15 W59	142	7800	3.5
79	2	25	15830				
79	2	26	15830	N15 W85	142	2500	2.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20460	N17 E80	148	(X)	3				
20460	N15 E55	147	(Y)	4				
20460	N15 E28	147	(Y)	5				
20460	N17 E15	147	(Y)	5				
20460	N17 W68	150	(BF)	3				
20460	N17 W76	146	(AP)	3				

MCMATH REGION 15832 CMP DATE 21.0 RETURN OF REGION 15779 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	2	13	15832	S25 E88	138	400	1.0
79	2	15	15832	S26 E68	132	1600	3.0
79	2	16	15832	S26 E57	132	2300	3.5
79	2	17	15832	S26 E43	132	2300	3.0
79	2	18	15832	S26 E30	132	2300	3.0
79	2	19	15832	S26 E18	132	2300	3.0
79	2	20	15832	S26 E05	132	2300	3.0
79	2	22	15832	S26 W20	130	2300	2.5
79	2	24	15832	S26 W45	128	2300	2.5
79	2	25	15832				
79	2	26	15832	S26 W70	127	1500	2.0
79	2	27	15832	S26 W82	126	900	1.5

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20461	S27 E69	133	(BP)	3				
20461	S27 E43	132	(AP)	4				
20461	S27 E29	133	(AP)	4				
20461	S28 W49	131	(BP)	3				
20461	S28 W60	130	(AP)	3				

MCMATH REGION 15834 CMP DATE 22.5 RETURN OF REGION 15785 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	2	15	15834	S13 E90	110	500	1.0
79	2	16	15834	S14 E79	110	1300	2.0
79	2	17	15834	S13 E64	111	1700	2.5
79	2	18	15834	S13 E51	111	1500	2.5
79	2	19	15834	S14 E39	111	1800	3.0
79	2	20	15834	S14 E26	111	1800	2.5
79	2	22	15834	S14 W01	111	1800	2.0
79	2	24	15834	S14 W27	110	1400	2.0
79	2	26	15834	S14 W55	112	1200	2.5
79	2	27	15834	S13 W68	112	1200	2.5
79	2	28	15834	S14 W80	111	800	2.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

MCMATH REGION 15837 CMP DATE 22.8 RETURN OF REGION 15787 ROTATION 3

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	2	16	15837	N23 E80	109	3000	2.5
79	2	17	15837	N23 E66	109	3000	3.0
79	2	18	15837	N23 E53	109	3000	3.0
79	2		15837				
79	2	19	15837	N23 E41	109	2700	3.0
79	2	20	15837	N24 E29	108	2500	3.0
79	2	22	15837	N24 E03	107	1900	3.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20463	N21 E65	110	AP	1				
20463	N21 E50	112	B	1				
20466	N26 E64	98	X	1				

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MCMATH REGION 15837 (CONT) CMP DATE 22.8 RETURN OF REGION 15787 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	2	24	15837	N24 W23	106	1400	3.0								
79	2	26	15837	N24 W50	107	1200	3.0								
79	2	27	15837	N24 W62	106	1200	2.0								
79	2	28	15837	N24 W74	105	1000	1.5								

MCMATH REGION 15844 CMP DATE 23.9

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	2	22	15844	S20 E16	94	100	2.0								
79	2	24	15844	S19 W10	93	400	2.0								
79	2	26	15844	S19 W38	95	800	2.5								
79	2	27	15844	S19 W50	94	700	2.5								
79	2	28	15844	S19 W63	94	400	2.0								

MCMATH REGION 15838 CMP DATE 25.1 RETURN OF REGIONS 15786 AND 15788 ROTATIONS 2 AND 5

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	2	17	15838	S26 E85	90	1000	1.0	20464	S25 E90	85	X	3			
79	2	18	15838	S24 E80	82	1400	1.5	20464	S25 E77	85	(AP)	4			
79	2	19	15838	S25 E69	81	1400	1.5								
79	2	20	15838	S25 E57	80	1400	2.5								
79	2	22	15838	S25 E32	78	1600	2.0								
79	2	24	15838	S25 E06	77	1200	1.5	20464	S26 W03	85	(AP)	3			
79	2		15838					20471	S26 E12	70	(AP)	3			
79	2	25	15838					20464	S25 W15	85	(AP)	3			
79	2		15838					20471	S25 E00	70	(AP)	3			
79	2	26	15838	S25 W20	77	1400	1.5								
79	2	27	15838	S25 W31	75	1200	1.5	20464	S25 W40	83	(AP)	4			
79	2		15838					20471	S26 W25	68	(AP)	3			
79	2	28	15838	S24 W42	73	1200	1.5	20464	S25 W53	83	(AP)	3			
79	2		15838					20471	S26 W38	68	(AP)	3			
79	3	01	15838						S26 W54				B	50	1 H
79	3	02	15838					20464	S25 W79		(AP)	3	B	40	1 H
79	3	02	15838					20471	S26 W65		(AP)	3			
79	3	03	15838	S24 W63		500	1.0	20471	S27 W77		(AP)	3	B	40	1 H

MCMATH REGION 15851 CMP DATE 25.3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	2	25	15851					20473	S33 W05	75	(BP)	2			
79	2	26	15851	S31 W18	75	800	2.0								
79	2	27	15851	S32 W30	74	1100	2.5	20473	S33 W31	74	(B)	3			
79	2	28	15851	S32 W43	74	1100	3.0	20473	S33 W44	74	(B)	3			
79	3	01	15851						S32 W61				B	90	10 D
79	3	02	15851					20473	S32 W70		(B)	3	B	70	5 C
79	3	03	15851	S32 W82		900	2.5	20473	S32 W85		(AP)	3	B	30	1 H

MCMATH REGION 15845 CMP DATE 25.4

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	2	22	15845	N12 E38	72	100	1.0								
79	2	24	15845	N11 E10	73	100	1.5	20469	N12 E08	74	(B)	2			
79	2	26	15845	N12 W17	40	100	1.0								

MCMATH REGION 15840 CMP DATE 26.6

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	2	19	15840	N38 E90	60	300	1.0								
79	2	20	15840	N37 E78	59	1000	2.0								
79	2	22	15840	N37 E50	60	1700	2.5								
79	2	24	15840	N38 E24	59	1400	2.5	20470	N36 E17	65	(AP)	3			
79	2	25	15840					20470	N36 E06	64	(AP)	3			
79	2	26	15840	N39 W01	58	1500	2.5								

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MCMATH REGION 15840 (CONT) CMP DATE 26.6

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	2	27	15840	N39 W12	56	1700	2.5
79	2	28	15840	N39 W25	56	2000	2.0
79	3	01	15840				
79	3	02	15840				
79	3	03	15840	N39 W61		1600	1.5
79	3	04	15840	N40 W76		600	1.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21470	N36 W19	62	(AP)	4				
20470	N36 W31	61	(AP)	3				
	N36 W47				B	30	2	H
20470	N37 W57		(AP)	2	B	30	1	H
20470	N37 W69		(AP)	2	B	10	2	B

MCMATH REGION 15841 CMP DATE 26.6 RETURN OF REGION 15792 ROTATION 3

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	2	20	15841	S14 E80	57	300	1.0
79	2	22	15841	S14 E53	57	300	1.5
79	2	24	15841	S14 E27	56	200	1.0
79	2	26	15841	S14 W01	58	300	1.0
79	2	27	15841	S13 W15	59	100	1.0
79	2	28	15841	S13 W28	59	300	1.0
79	3	03	15841	S13 W70		200	1.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

MCMATH REGION 15846 CMP DATE 26.9 RETURN OF REGION 15791 ROTATION 3

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	2	22	15846	N25 E56	54	300	1.0
79	2	24	15846	N24 E30	53	200	1.0
79	2	26	15846	N24 E03	54	200	1.5
79	2	27	15846	N25 W08	52	200	1.0
79	2	28	15846	N25 W21	52	400	1.0
79	3	03	15846	N26 W61		400	1.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

MCMATH REGION 15852 CMP DATE 27.2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	2	26	15852	S19 E08	49	300	2.0
79	2	27	15852	S19 W04	48	600	2.0
79	2	28	15852	S18 W17	48	900	2.5
79	3	01	15852				
79	3	02	15852				
79	3	03	15852	S19 W57		1200	3.0
79	3	04	15852	S20 W72		1300	3.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20475	S18 W06	49	(B)	3				
20475	S19 W17	47	(B)	3				
	S18 W36				B	30	7	C
	S19 W51				B	20	5	B
20483	S19 W60		(AP)	3	B	130	6	D
20483	S18 W74		(B)	2	B	20	4	B

MCMATH REGION 15842 CMP DATE 27.5 RETURN OF REGION 15797 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	2	22	15842	N10 E65	45	100	1.5
79	2	24	15842	N10 E40	43	200	1.5
79	2	26	15842	N10 E12	45	200	1.5
79	2	27	15842	N10 W01	45	200	1.5
79	2	28	15842	N10 W16	47	300	1.5
79	3	03	15842	N12 W56		300	1.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

MCMATH REGION 15857 CMP DATE 27.5

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	2	28	15857	S33 W14	45	100	1.0
79	3	01	15857				
79	3	02	15857				
79	3	03	15857	S33 W54		900	3.0
79	3	04	15857	S34 W67		800	3.0
79	3	06	15857	S34 W90		400	2.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S33 W33				B	70	12	D
20479	S34 W42		(B)	3	B	80	13	D
20479	S34 W54		(B)	3	B	90	7	D
20479	S33 W67		(B)	2	B	30	4	B

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MCMATH REGION 15843 CMP DATE 28.6

				CALCIUM		PLAGE	DATA		SUNSPOT	DATA						
YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	22	15843	N24	E85	25	400	2.0										
79	2	24	15843	N24	E54	29	800	2.0										
79	2	26	15843	N24	E26	31	800	2.5										
79	2	27	15843	N24	E14	30	900	2.5										
79	2	28	15843	N24	E00	31	1000	2.5										
79	3	01	15743							N24	W13				B	10	2	B
79	3	02	15843							N23	W28				B	10	2	B
79	3	03	15843	N25	W39		1100	2.0	20484	N23	W38		(B)	2	B	10	2	B
79	3	04	15843	N24	W54		1100	2.0										
79	3	06	15843	N27	W80		600	1.0										

NOTE; NO CALCIUM SPECTROHELIOGRAMS WERE SECURED AT THE MCMATH-HULBERT OBSERVATORY ON FEB. 3, 14, 21, 23 AND 25, 1979.
NO SUNSPOT OBSERVATIONS WERE MADE AT MT. WILSON ON FEB. 1, 2, 3, 4, 14, 16, 19, 20, 21, 22, 23 AND 26, 1979.

DAILY CALCIUM PLAGE INDEX

FEBRUARY 1979

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
79	2	1	54.8	79	2	11	53.1	79	2	21	*
79	2	2	51.2	79	2	12	46.6	79	2	22	52.8
79	2	3	*	79	2	13	44.2	79	2	23	*
79	2	4	65.8	79	2	14	*	79	2	24	31.9
79	2	5	70.9	79	2	15	51.6	79	2	25	*
79	2	6	69.2	79	2	16	62.6	79	2	26	27.3
79	2	7	67.4	79	2	17	65.8	79	2	27	27.3
79	2	8	67.9	79	2	18	66.6	79	2	28	33.3
79	2	9	56.8	79	2	19	70.3				
79	2	10	58.7	79	2	20	71.7				

* NO OBSERVATIONS

ERRATA: August and September 1978 data have an error in the L values in Regions of Solar Activity. All L values for these two months are a day behind the tabulated CMP dates. These data appear in SGD 410 Part I, pages 110-120 (October 1978 issue) and SGD 411 Part I, pages 106-116 (November 1978 issue).

SUDDEN IONOSPHERIC DISTURBANCES

FEBRUARY 1979

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TIME SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
01	0808	0840	0815	2	5			5	3		1		0805	15800
01	0909	0950	0914	2+	5			5	3		1		0905	15800
01	1852	1916	1855	1-	3	1			1				1847	15796
02	0058	0156D	0123	1-	1				1				0047E	15802
02	0203	0316	0217	1-	1				1				0155	15802
02	0835	1010	0850	1-	1				1				0835E	15802
02	1433	1450	1437	1-	5	1		2	3				*	
02	1610	1628	1620	1-	3				1	1	1		*	
02	1638	1714D	1642	1-	1					1			*	
02	1714	1740	1722	1-	1					1			*	
04	1725	1820	1731	1	5				2	1	3		1724?	15808
04	1828	1851	1832	1	5				2	1	3		1823	15804
05	0113	0247	0133	1-	1				1				0124E	15802
05	0638	0810	0648	2	5	1		1	1				*	
05	1150	1255	1155	1	5	2		6	4		2		1153E	15808
05	1230	1253	1233	1	1		1						1228	15808
05	2119	2221	2137	2	5	2			3	1	4		2119	15808
06	0915	0930	0918	1-	1				1				0917	15802
06	1300	1320	1302	1	1				1				1255	15802
06	1605	1628	1657	1	3				2	1	1		1605	15802
06	2106	2120	2111	1-	1					1			2059E	15807
07	0351	0502	0400	2	3	1			1				0351	15808
07	1107	1227	1122	1+	5	1		7	4		2		1110	15808
07	1242	1321	1255	1-	1			1					1250	15813
08	0203	0349	0213	2+	3	1			2				0205	15808
08	0651	0825	0714	2	1				1				*	
08	1419	1511	1427	1-	5			2	2	1			1421	15818
08	1448	1507	1452	1-	5				3	1	3		1458	15802
08	1521	1625	1527	1-	5	1			3	1	2		1518	15802
08	2355	0020D	0001	1-	1				1				2347	15818
09	0744	0926	0800	2	5	1		1	3				0750	15807
09	1144	1240	1158	1-	5	1		2	2	1			NF	
09	1340	1455	1355	1-	1				1	1			1339	15807
09	1552	1608D	1559	1-	1					1			1554	15807
09	1622	1653	1643	1-	3				1	1	1		1618	15807
09	1630	1702	1634	1-	5				2	1	2		1622	15808
09	1900	1943	1904	1	5	1			2	1	4		1900	15818
09	2020	2042	2024	1-	1				1	1			2016	15807
09	2057	2120	2101	1-	1				1	1			2054	15807
10	0035	0100	0040	1-	1				1				*	
10	0337	0413D	0344	1-	1				1				*	
10	0413E	0506	0440	1-	1				1				*	
10	0741	0942	0759	1+	5			2	1				NF	
10	1126	1200D	1200	1-	1				1		1		*	
10	1245	1315	1255	1+	5			3	2		1		1241	15807
10	1430	1645	1440	1-	1				1		1		1430	15807
10	1648	1750D	1708	1-	1					1			1654	15807
10	1750	1928	1804	1	3					1	1		1758	15807
10	1859	1835	1905	1-	1						1		1853	15807
10	2039	2117	2045	1-	5	1			2	1	4		2037	15807
11	0813	0908	0826	1-	1				1				0813E	15807
11	1226	1435	1246	1+	5	4		7	5		2		1225	15807
11	1501	1546	1526	1-	1				1		1		1507E	15807
11	2036	2104	2043	1-	3	1			1				2036	15826
12	0000	0400	0042	2+	3	1			1				0000	15807
12	0210E	0230	0223	1-	1	1							0213	15816
12	0547E	0812D	0624	2	1				1				0548	15807
12	0812E	0921D	0823	1+	5			3	3				*	
12	0918	0945	0927	1+	5	1		4	3				*	
12	1002E	1155D	1013	1+	5	1		3	4		1		*	
12	1031	1130	1050	1-	5	1		3	3		1		NF	
12	1154	1250	1213	1	5			4	4		2		1157	15813
12	1436	1635	1450	1	5	1		7	4		4		1424E	15816
12	1950	2110	2010	1-	5	2			3	1	4		1948	15816
12	2028	2055	2033	1-	1				1				2025	15818
13	0225	0320	0236	1-	1				1				0222E	15816
13	1058	1125	1108	1	5	1		6	2		1		1050	15832
13	1215	1320	1220	1-	3	1		5	2		1		1200	15830
13	1339	1410	1345	1-	5	1		2	3		2		*	
13	1417	1515	1427	1-	5			5	3	1	1		*	
13	1652	1718D	1702	1-	5				2	1	4		NF	
13	1718	1758	1728	1-	5	2			2		4		1715	15830
13	1756	1852D	1808	1-	5	1			2		4		NF	
13	1850	1920	1858	1-	5	1			2		4		1847	15818
13	1944	2018	1952	1-	5	2			3		4		1937	15818
13	2146	2217D	2157	1-	1				1				2151	15830
13	2328	0019D	2346	1-	3				2				2338	15832

SUDDEN IONOSPHERIC DISTURBANCES

FEBRUARY 1979

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
14	0018	0106D	0024	1-	1				1				0018	15807
14	0105E	0238	0114	1	3	1			1				0106	15830
14	0653	0724	0700	1-	1				1				0653	15830
14	0803	0839	0810	1-	1				1				0802E	15819
14	1156	1310	1220	1	5	1		5	4		2		NF	
14	1518	1530D	1530	1-	5				2		3		NF	
14	1550	1910	1620	1+	5	2		3	2	1	4		1548	15835
14	2225	2321	2238	1	5				1	1	1		2222	15830
15	0118	0223	0129	1-	3	1			1				0118	15830
15	1123	1149	1130	1-	1				1				1118	15807
15	1619	1637D	1637	1-	5				1	1	3		NF	
15	1716	1807	1718	1-	5				1	1	4		1713	15830
15	2153	2244	2200	1-	3				1	1			2152	15832
16	0144	0320	0150	1-	1	1							0144	15830
16	0549	0722	0606	1+	1				1				0552	15807
16	1107	1120	1109	1-	1				1				*	
16	1247	1315	1255	1-	5	1		4	3		2		1245	15830
16	1629	1716	1636	1-	5				1	1	3		1624	15830
16	1724	1830	1737	1-	5	1			1	1	4		1718	15830
16	1735	1845	1802	1-	5					1	3		1750	15830
16	1955	2035	2005	1-	5					1	2		1951	15823
16	2142	2237	2157	1-	5	2			2	1	4		*	
16	2252	0003D	2308	1-	1				1				*	
17	0004E	0224D	0035	1-	1				1				0004	15823
17	0124E	0208	0139	1-	1				1				*	
17	0805	0930	0810	1+	3				2				0805E	15823
17	1437	1609	1455	1-	5	1			2		4		1431	15823
17	1721	1832	1731	1-	5				1	1	4		1720	15830
17	1847	1910D	1856	1-	5				1	1	4		1844	15830
17	1905	1950	1917	1-	5				1	1	4		1905	15830
17	2128	2142	2135	1-	5				1		3		2126	15823
18	0641	0725	0647	2	5	2		4	1				0637	15830
18	1122	1151D	1151	1-	3			1	1		1		1117	15823
18	1218	1245D	1245	1-	1				1		1		1214	15823
18	1306	1405	1328	1	5	1		5	3		1		1306	15823
18	1444	1455	1449	1-	5			1	3		3		1442	15823
18	1540	1617	1554	1-	5	1			2		4		1538	15823
18	1635	1655	1638	2	5	3		1	3	1	3		1628	15823
18	1843	1849D	1849	1-	1				1		1		1842	15823
18	1955	2054	2013	1	5	2			2		3		1947	15830
18	2053	2200	2112	1-	1				1		1		2055	15830
18	2115	2207D	2128	1	5	1			1		3		2115	15830
18	2207E	2328D	2222	1	5	2			2		4		2203	15823
18	2336	0049D	2347	2+	5	1			1		2		2329	15823
19	0352	0423D	0358	1-	3	1			1				0357E	15823
19	0921	1015	0944	1	5			4	3				0928E	15830
19	0955	1012	1004	1-	1				1		1		*	
19	1016	1023D	1023	1-	5			3	4		1		*	
19	1033	1105	1038	1-	5			4	3		2		*	
19	1130	1208	1140	1-	1			1					*	
19	1239	1300	1246	1-	3			5	2		1		NF	
19	1520	1600	1530	1-	5	2		7	2		4		1524	15823
19	1808	1945	1823	2	5	1			1		4		1805	15830
19	2224	2246	2230	1-	1				1				2221	15830
20	0440	0626	0459	2-	1				1				0447	15830
20	0945	1050		1-	1			1					*	
20	1011	1030	1016	1-	1				1				*	
20	1032	1045	1034	1-	1	1							*	
20	1047	1053	1049	1-	1			1					*	
20	1231	1243	1234	1	3	1		1	2				1230	15830
20	1257	1310	1304	1-	1			1	1				1257	15830
20	1321	1323D	1323	1-	1				1				1319	15830
20	1349	1356	1352	1-	1			1	1				1349	15823
20	1410	1600	1434	2	5	2		6	3		5		NF	
20	1614	1625D	1625	1	5				2	1	4		1610	15830
20	1648	1657D	1657	1	5	1			2		4		1644	15830
20	1730E	2100	1820	1-	1						1		1729	15828
20	1800	1920	1827	1-	5	1			1		3		1759	15830
20	2145	2347	2230	1	5	2			1		4		*	
20	2303	2320	2309	1	1	1							*	
20	2347E	0042D	2354	1-	3	1			1				2348	15830
21	0004E	0035D	0004	1-	1				1				0005E	15830
21	0042E	0133	0052	1	3	1			2				0045	15830
21	0934	1008	0940	1+	5	1		2	4		2		0932	15823
21	1114	1155	1135	1	5	2		5	4		1		1107	15823
21	1333	1343D		1-	1				1		1		1334	15830
21	1414	1500	1424	1+	5	4		7	3		5		1418E	15830
21	1537	1545D	1545	1-	5				1		4		1537	15830
21	1557	1624	1602	1-	5	1		1	3		4		1555E	15830
21	1629	1638D	1638	1-	5				1		4		1627	15830
21	1721	1738D	1733	1-	3	1			1		1		1723	15830
21	1850	1905D	1905	1-	1				1		1		1853E	15830
21	1930	2021D	2021	1-	5				2		4		1939	15830
21	1953	2154D	2018	1-	5	1			2		4		NF	
21	2154	2218	2200	1-	3				1		1		*	
22	0123E	0240	0131	1-	5	1			3				0125	15830
22	0504E	0658D	0514	3	3	1			1				0505	15830
22	0911	1037	0918	1+	5	1		4			1		0915	15830
22	1109	1150D	1150	1-	5			2	3		1		NF	

SUDDEN IONOSPHERIC DISTURBANCES

FEBRUARY 1979

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
22	1222	1230	1224	1-	5			1	3		1		1220	15823
22	1253	1330	1300	1	5	2		7	3		2		1253	15830
22	1534	1550	1540	1-	5	1		1	2		3		1534	15836
22	1602	1615D	1615	1-	1				1		1		1558	15840
22	1622	1640D	1640	1-	5	1			1		4		1622	15836
22	1715	1759D	1717	1-	3						2		1713	15823
22	1807	1900D	1820	1	5	1			2		4		1808	15830
22	2223	2342	2234	1	5				2	1			*	
23	0415	0554D	0441	1-	3	1			1				*	
23	0554E	0730	0607	1-	1				1				*	
23	0930	1000	0936	1-	5	1		2	4		2		*	
23	1452	1515	1457	1	5	2		6	4		5		1452	15830
23	1733	1806	1738	1-	5				2		4		1725	15830
23	1826	1912D	1836	1-	5				2	1	4		1825	15830
23	1912	2012	1920	1-	5	1			3	1	4		NF	
24	1207	1223	1211	1-	1			1	1				1208	15830
24	1235	1247	1241	1-	5			1	3		1		1235	15830
24	1330	1340	1335	1-	1				1				1333	15830
24	1352	1410	1356	1-	5			2	3		2		1352	15830
24	1548	1610	1553	1-	5	1		1	4	1	4		1547	15830
24	1632	1720D	1640	1-	5				2	1	4		1636	15830
24	1725	1820	1735	1-	5				2	1	4		1724	15830
25	0640E	0844D	0708	1+	1				1				0643E	15849
25	0844	0900	0850	1	5			1	3				NF	
25	1200	1230	1206	1-	5			1	5		2		NF	
25	1443	1450	1445	1-	5				3	1	1		1438	15823
25	1510	1515	1512	1-	5			2	2	1	1		NF	
25	1816	1853	1822	1-	5	1			2	1	3		NF	
25	2008	2040	2012	1-	1				1	1			2010	15837
25	2206	2238	2212	1-	1				1	1			2206	15850
26	1349	1358	1353	1-	5			1	2	1	1		*	
26	1445	1535	1508	1-	1				1		1		*	
26	1842	1936	1848	1	5	1			2	1	1		1850E	15855
28	0031	0105	0038	1-	3				2				0028	15855
28	0228	0302	0235	1-	1				1				0228	15855

PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT) and STATION
06	0000-2400 TN
09	1745-2400 UM (10 kHz)
	1815-2400 UM (13 kHz)
10	0000-1300 UM (13 kHz)
	0000-1315 UM (10 kHz)
13	0700-0900 UM (13 kHz)
13	1010-1300 UM (16 kHz)
	1105-1415 UM (10 kHz)
	1110-1900 UM (13 kHz)
16	1225-1230 UM (10, 13 and 16 kHz)
28	0000-2400 TN

STATIONS REPORTING FOR FEBRUARY 1979

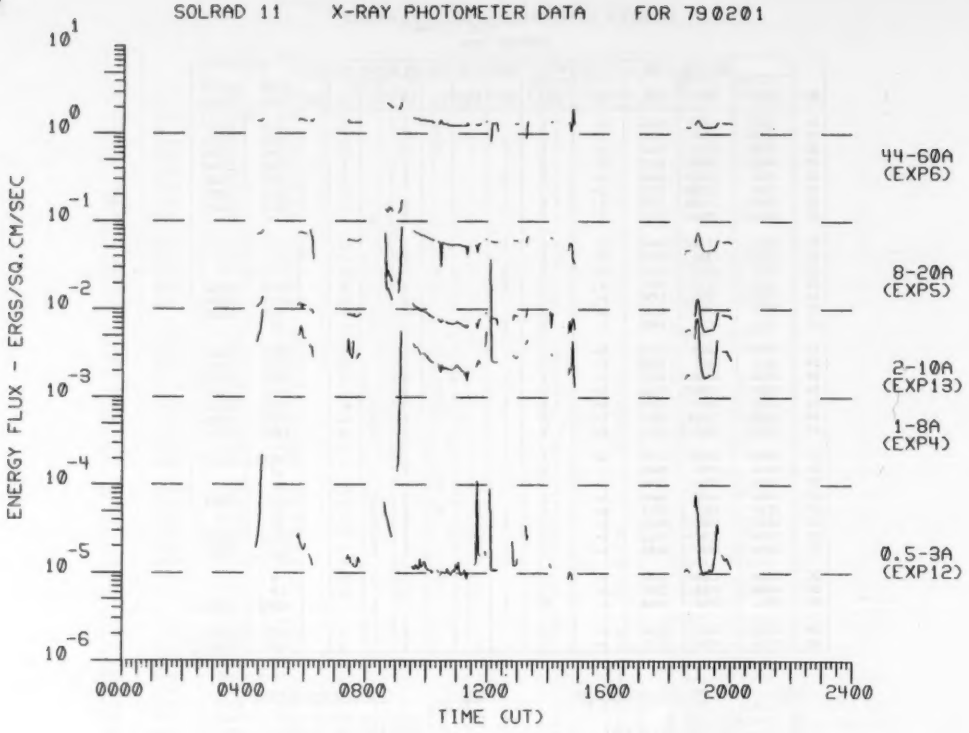
AAVSO (A21) (SES)
CHILWORTH (CL) (SCNA)
DARMSTADT (DA) (SWF)
HERSTMONCEUX (HC) (SEA)
HIRAISO (HI) (SWF)
HOBART (TA) (SEA)
HUANCAYO (HU) (SWF)
INUBO (IN) (SPA)
JULIUSRUH (JR) (SWF)
KANDILLI (KD) (SEA)
KUHLUNGSBORN (KU) (SES, SPA)
MC MATH (MC) (SWF, SCNA)
NEW JERSEY (NJ) (SES)
PANSKA VES (PU) (SWF, SEA, SES)
PRESTON (LO) (SEA)
SAO PAULO (UM) (SES,SPA)
ST CLOUD (SC) (SES)
TABLE MOUNTAIN (TM) (SPA)
TORINO (TN) (SPA)
UPICE (UI) (SEA)
WHITE SANDS (WS) (SEA)
VSETIN (VS) (SEA)
ZILINA (ZL) (SEA)

SIDs BY McMATH REGION

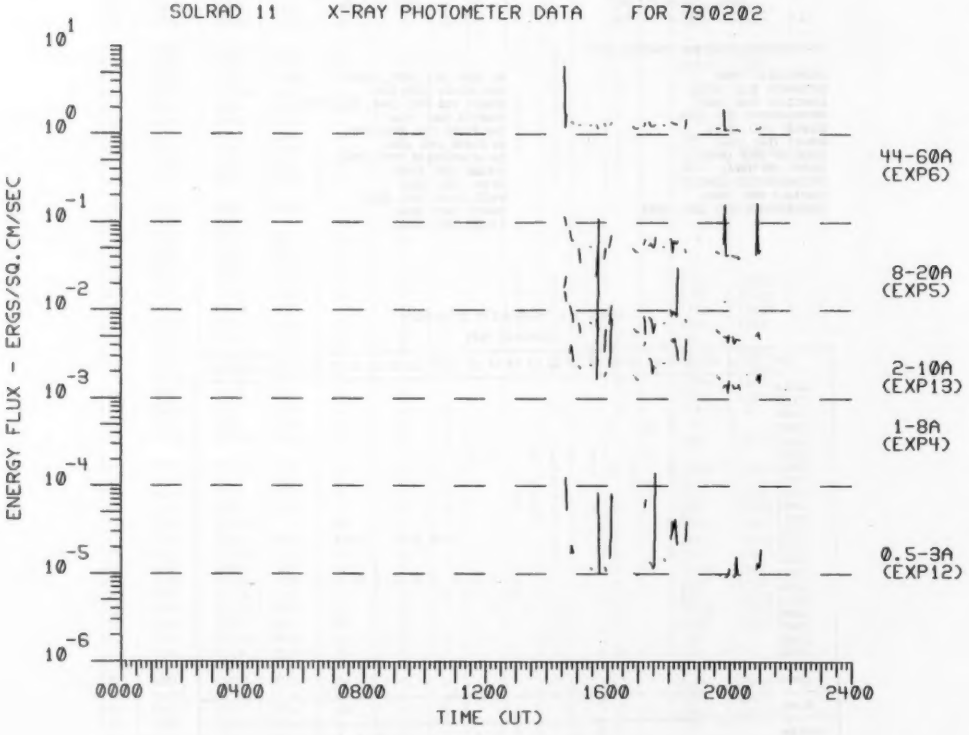
FEBRUARY 1979

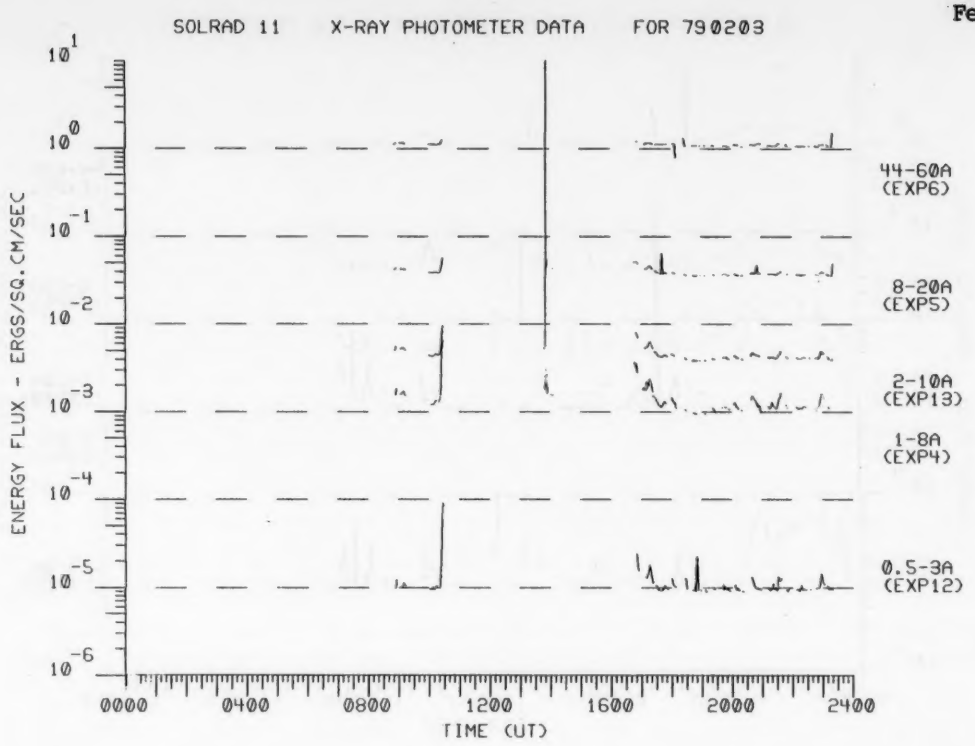
DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
REGION																												
15796	1																											
15800	2																											
15802		3			1	3		2																				
15804				1																								
15807						1			6	6	3	2		1	1	1												
15808				1	3		2	1	1																			
15813							1						1															
15816													3	1														
15818								2	1				1	2														
15819															1													
15823																	1	4	9	2	1	2	2		1			
15826												1																
15828																					1							
15830													3	3	2	5	3	4	3	8	10	5	3	7				
15832													2		1													
15835														1														
15836																						2						
15837																									1			
15840																						1						
15849																									1			
15850																									1			
15855																										1		2
X-RAY																												
UNKNOWN									1	1		3	2	2	1				4	1	1	1	1		4			
NO FP		4			1			1		4		1	2				3	1		1	6	1	1	3		2		

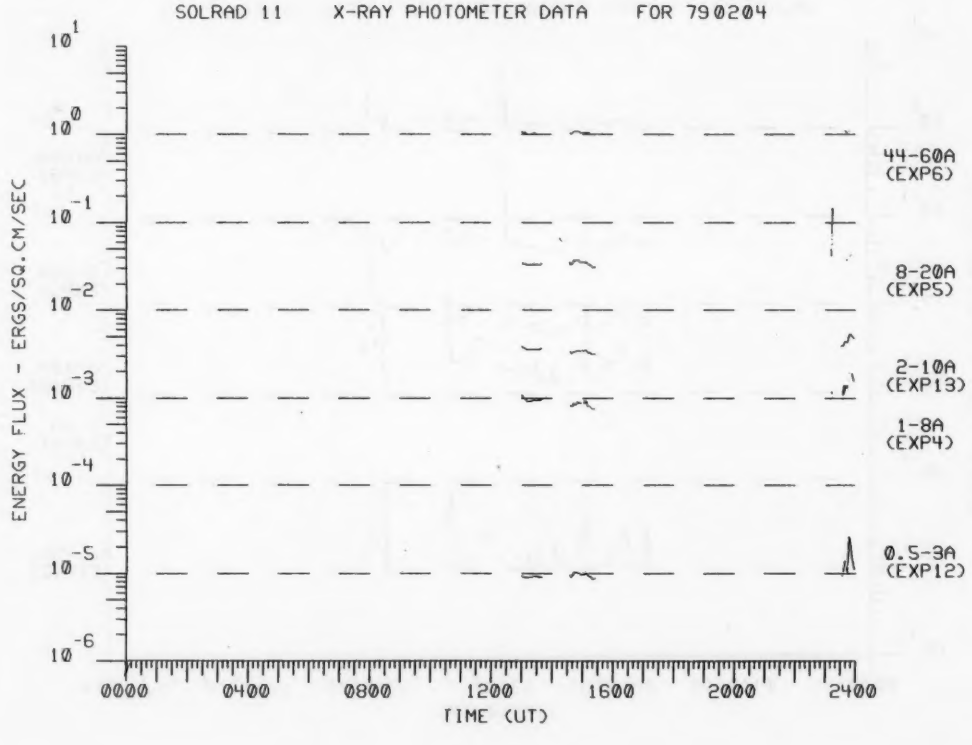
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790201



SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790202




SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790203
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790204
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
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10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
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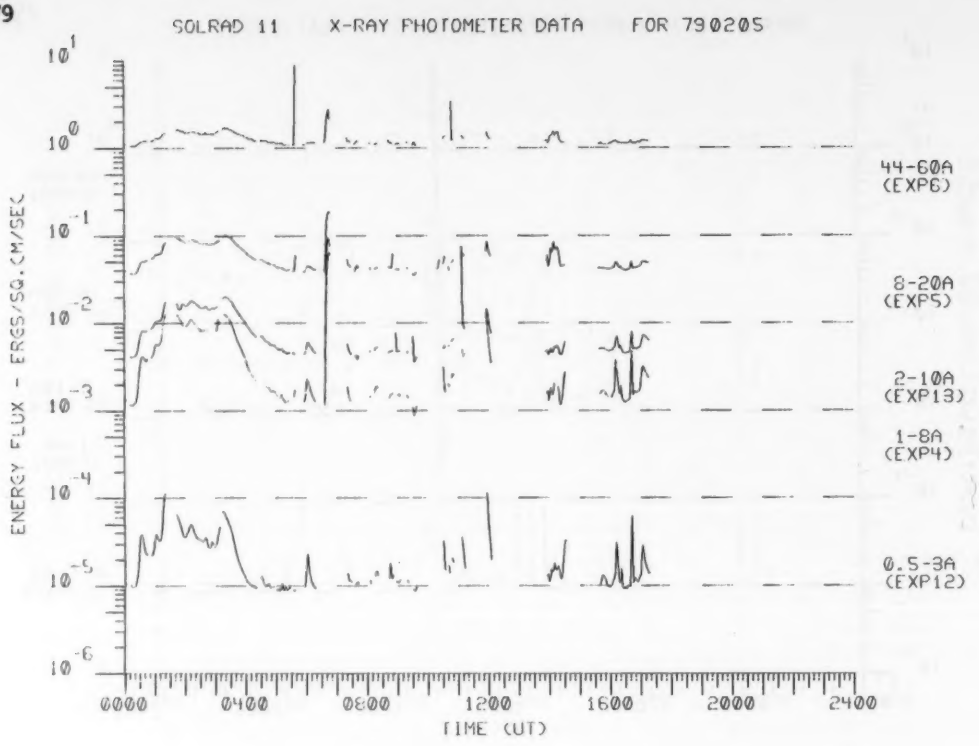
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790205
ENERGY FLUX - ERGS/SQ.CM/SEC
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10^{-1}
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10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
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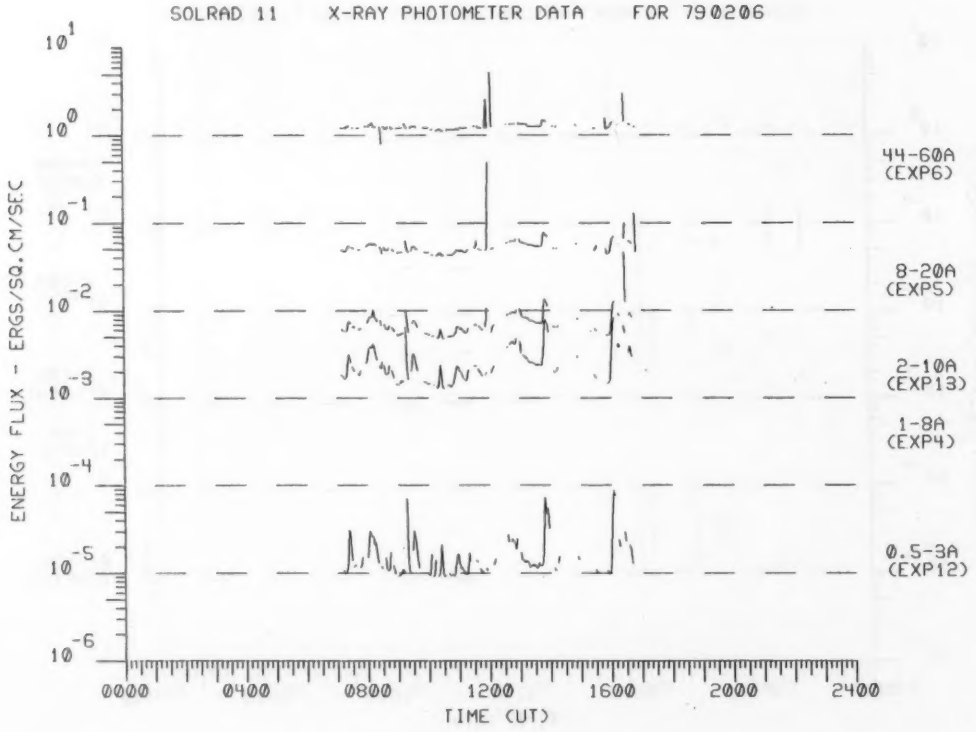
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790206
ENERGY FLUX - ERGS/SQ.CM/SEC
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10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
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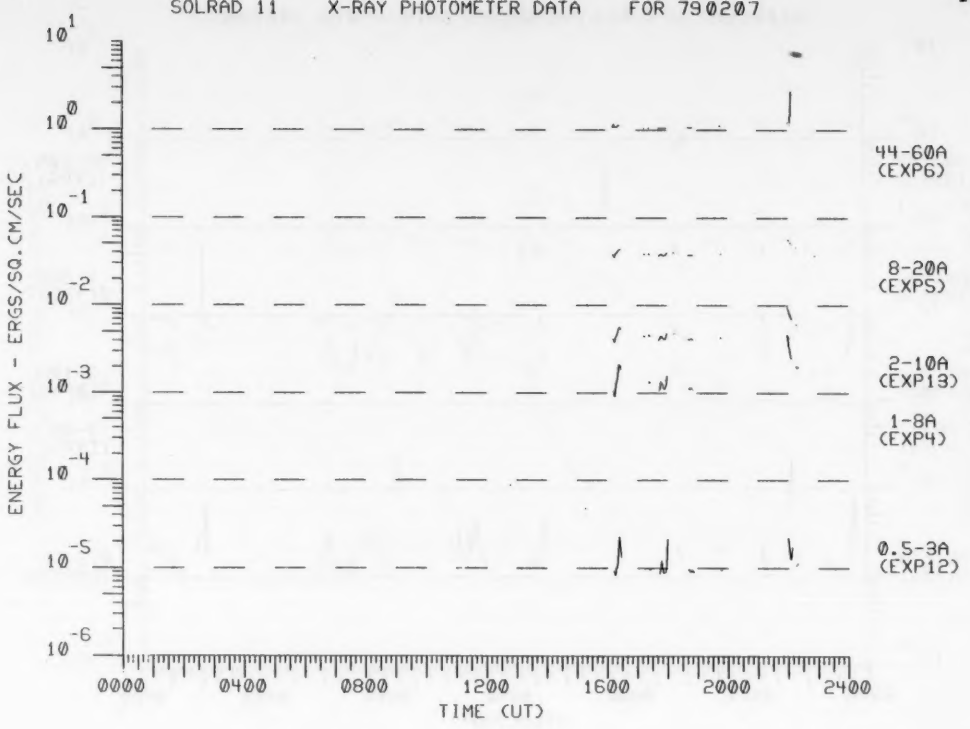
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790207
ENERGY FLUX - ERGS/SQ.CM/SEC
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10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
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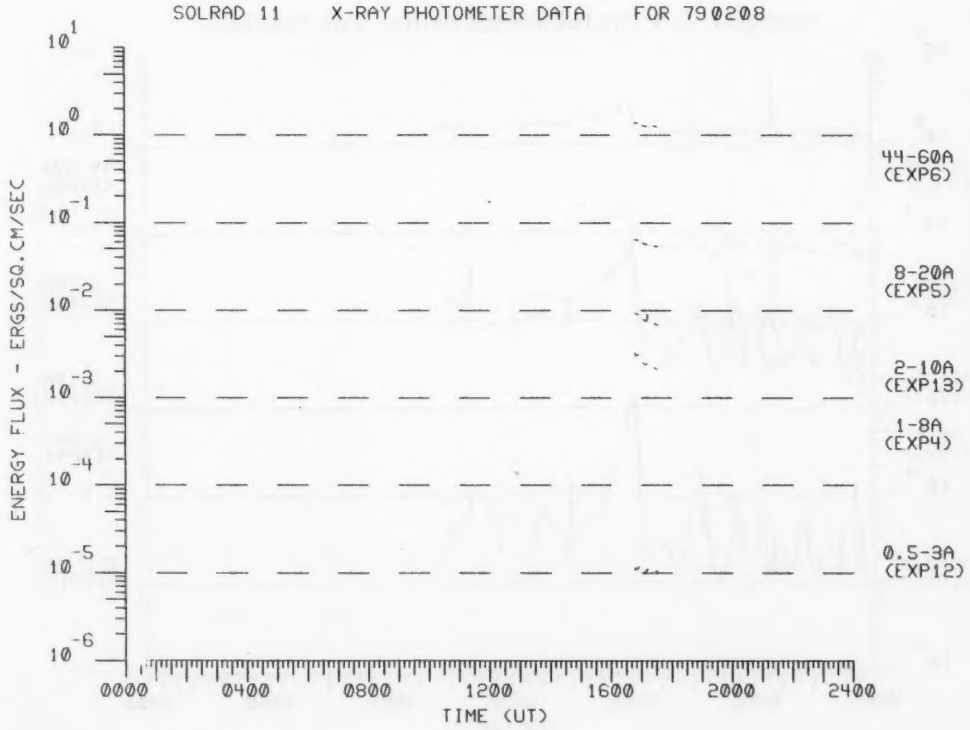
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790208
ENERGY FLUX - ERGS/SQ.CM/SEC
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10^{-1}
10^{-2}
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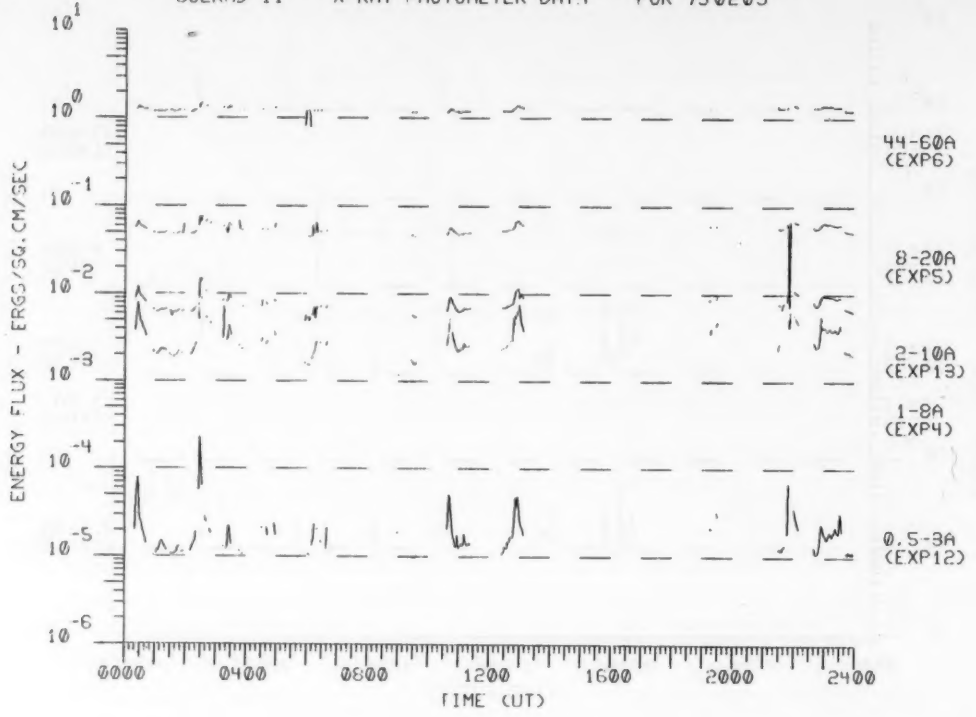
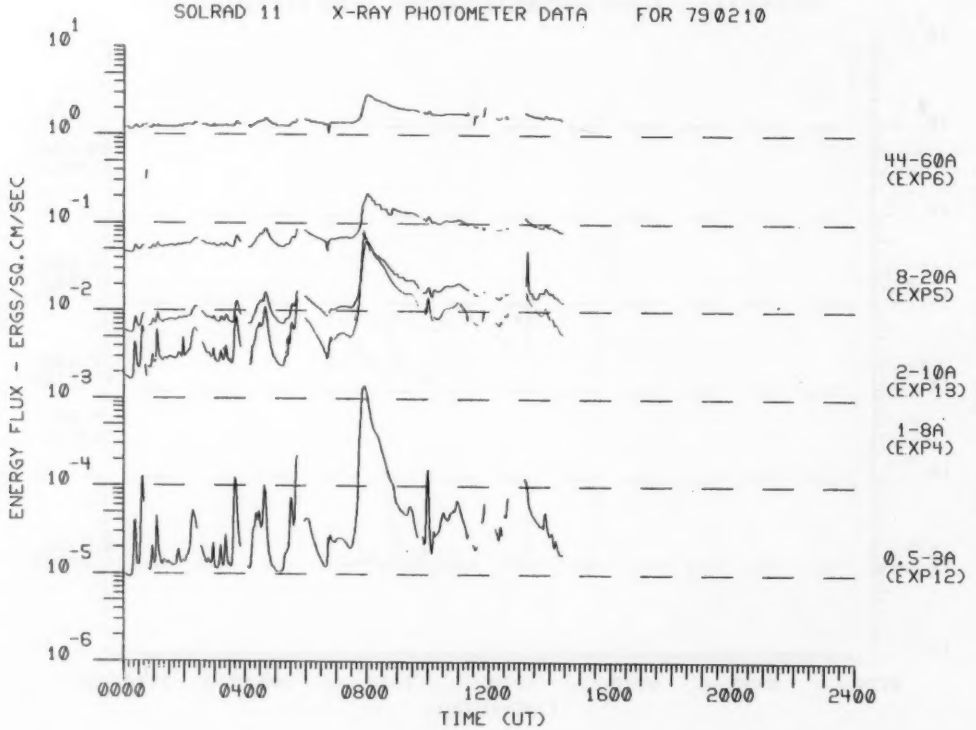
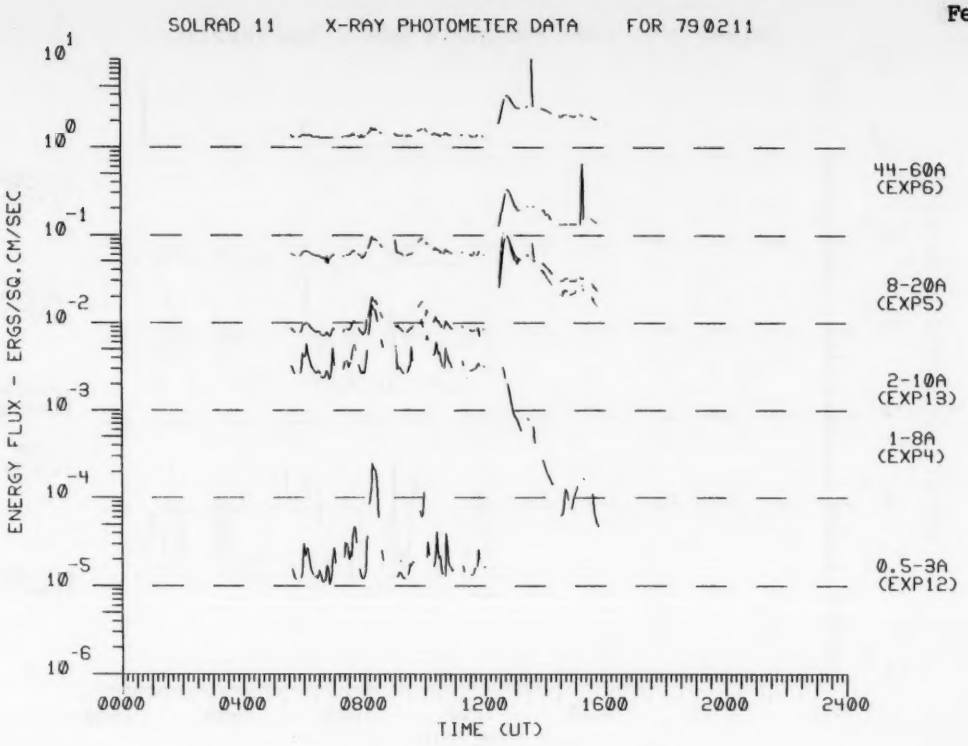
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790209



SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790210




SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790211
ENERGY FLUX - ERGS/SQ.CM/SEC
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10^{0}
10^{-1}
10^{-2}
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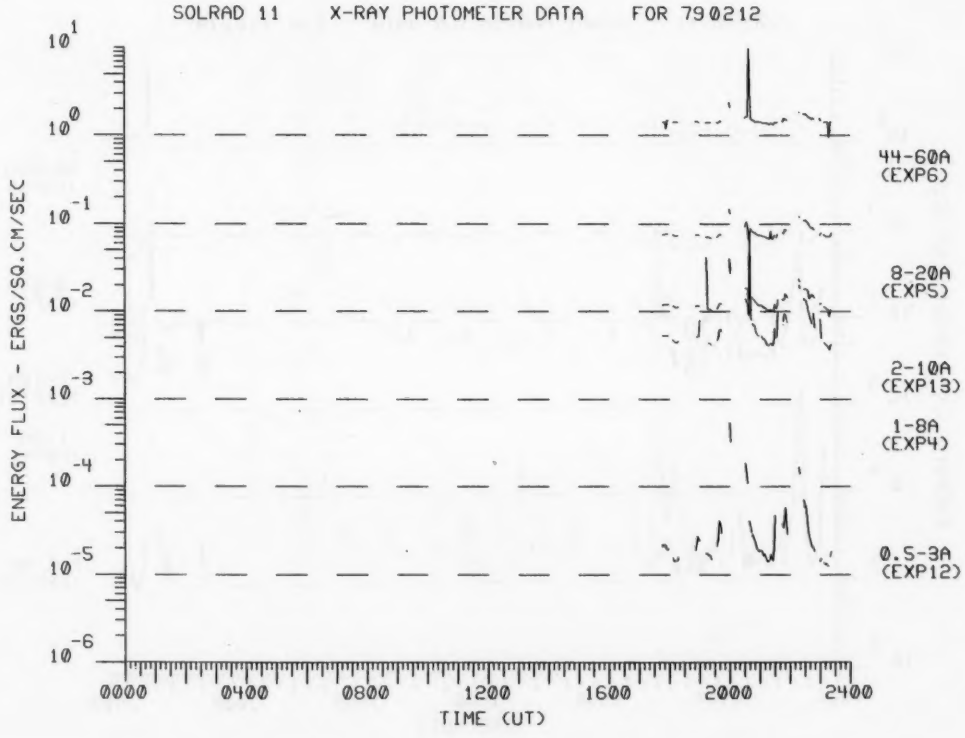
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790212
ENERGY FLUX - ERGS/SQ.CM/SEC
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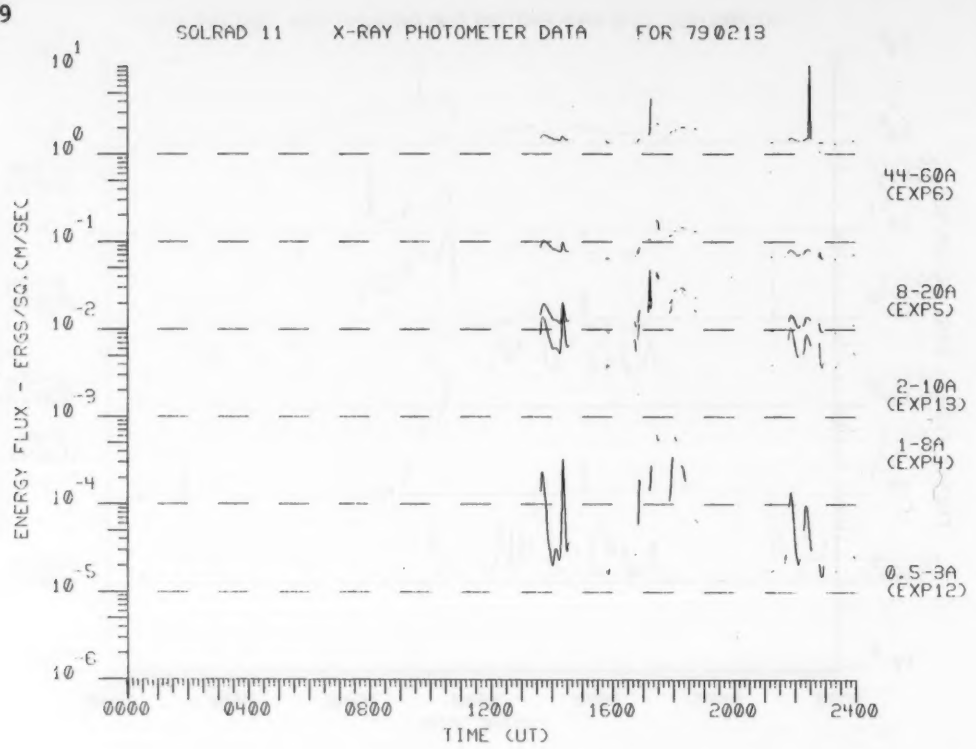
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790213
ENERGY FLUX - ERGS/SQ.CM/SEC
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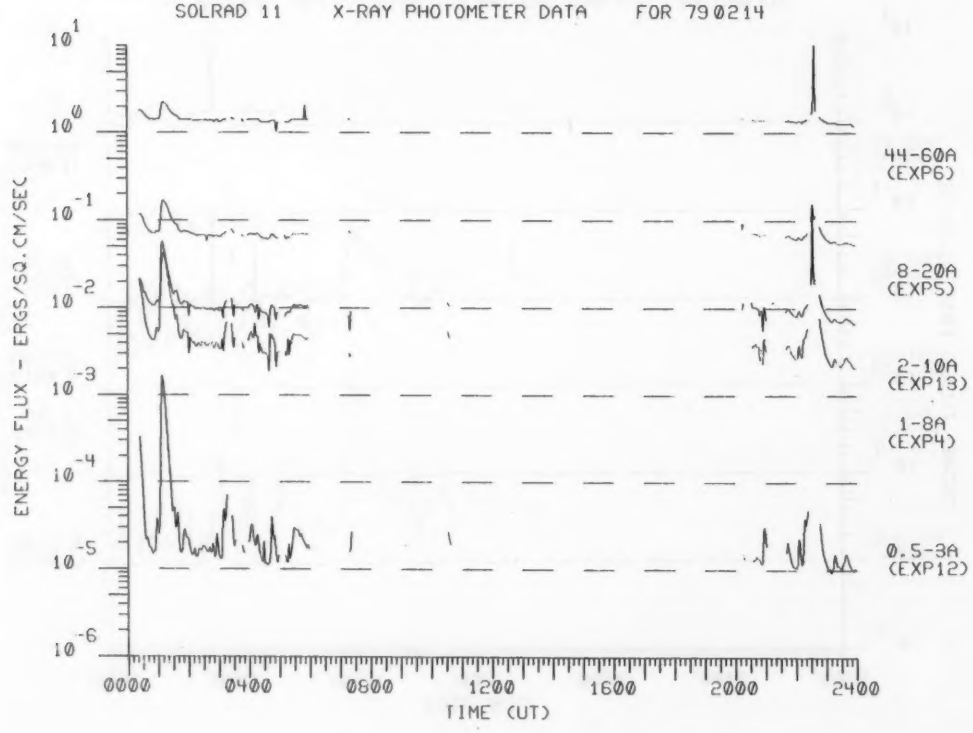
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790214
ENERGY FLUX - ERGS/SQ.CM/SEC
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10^{-1}
10^{-2}
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10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
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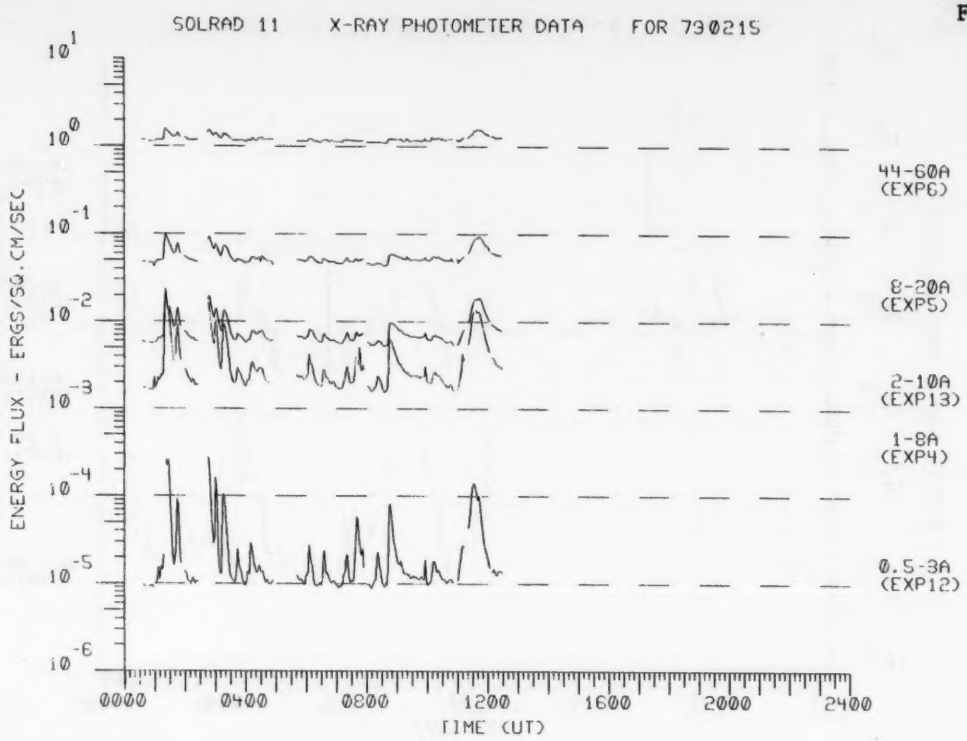
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790215
ENERGY FLUX - ERGS/SQ.CM/SEC
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10^{0}
10^{-1}
10^{-2}
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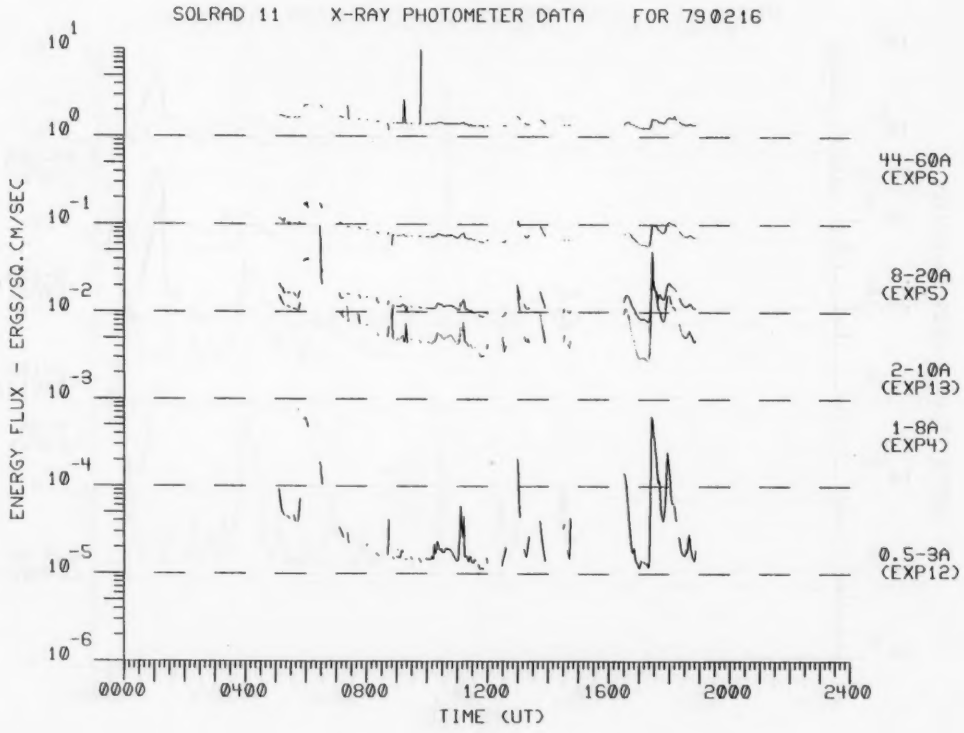
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790216
ENERGY FLUX - ERGS/SQ.CM/SEC
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10^{0}
10^{-1}
10^{-2}
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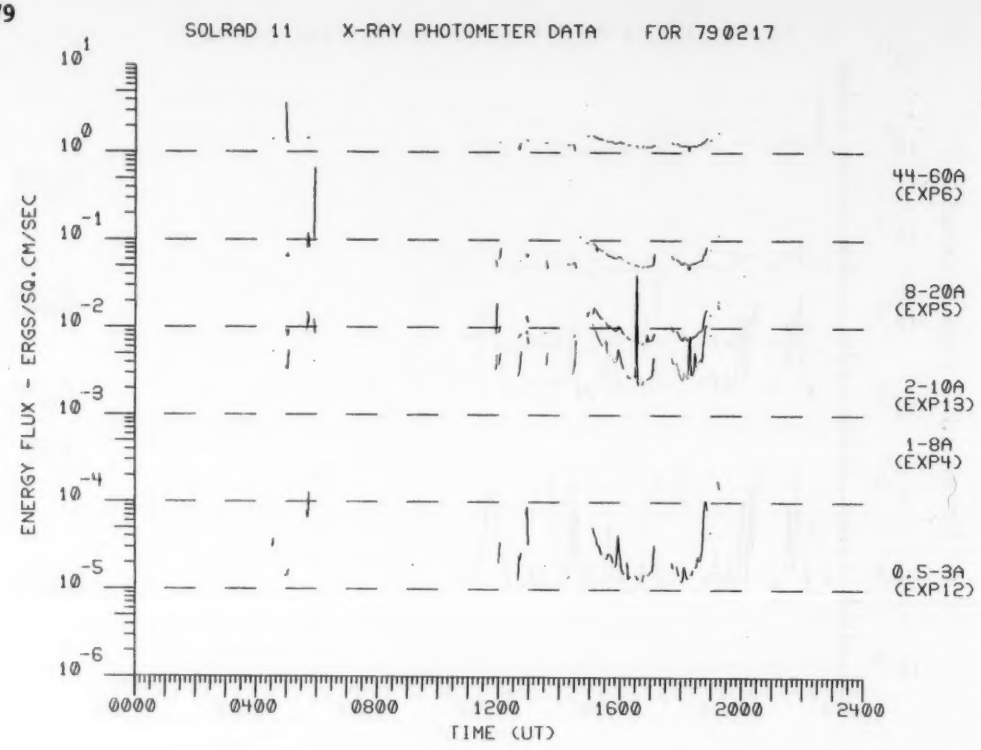
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790217
ENERGY FLUX - ERGS/SQ.CM/SEC
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10^{0}
10^{-1}
10^{-2}
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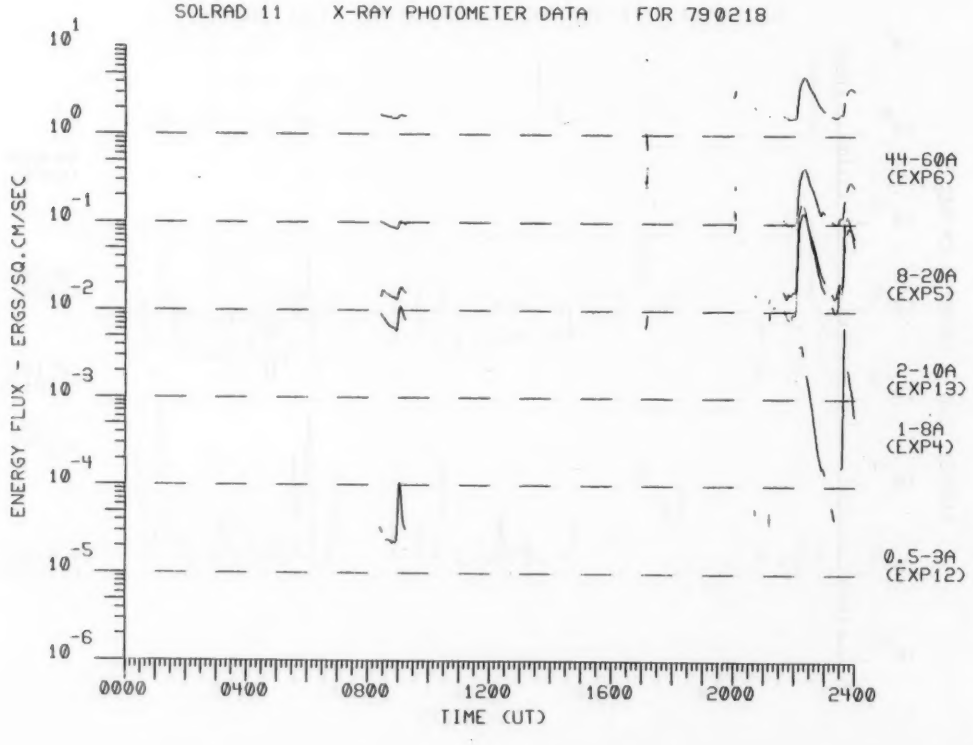
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790218
ENERGY FLUX - ERGS/SQ.CM/SEC
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10^{0}
10^{-1}
10^{-2}
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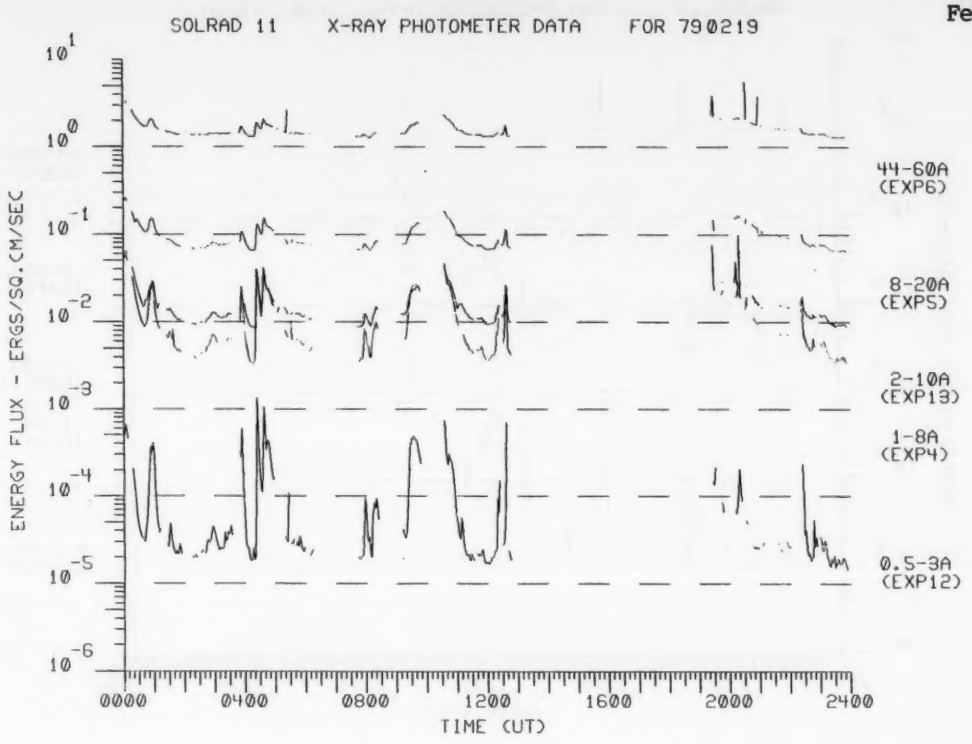
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790219
ENERGY FLUX - ERGS/SQ.CM/SEC
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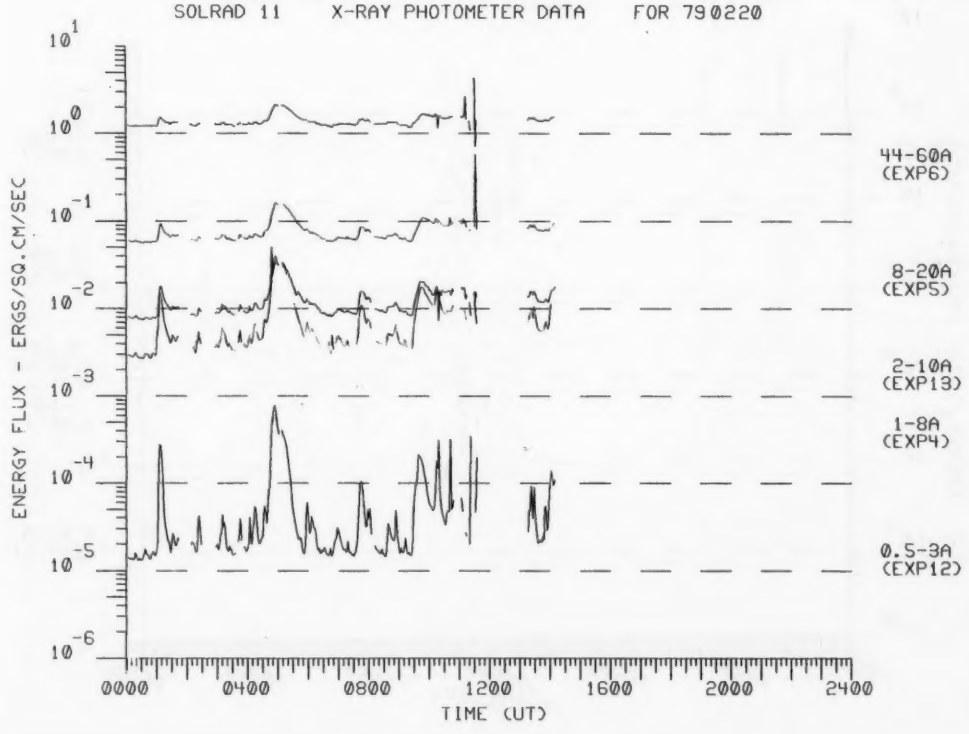
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790220
ENERGY FLUX - ERGS/SQ.CM/SEC
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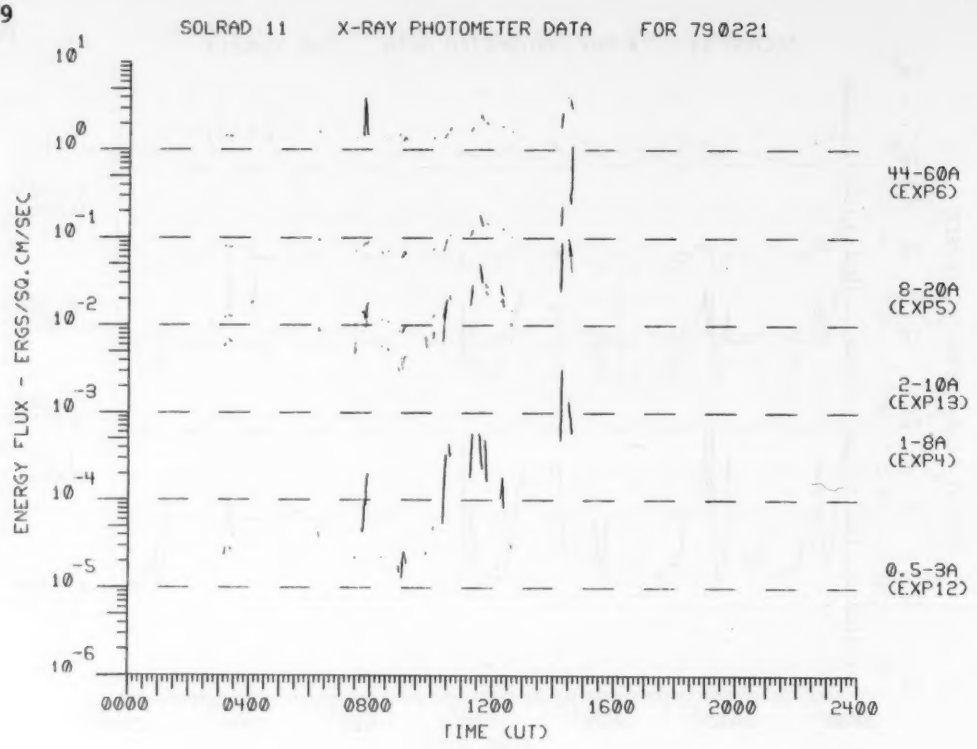
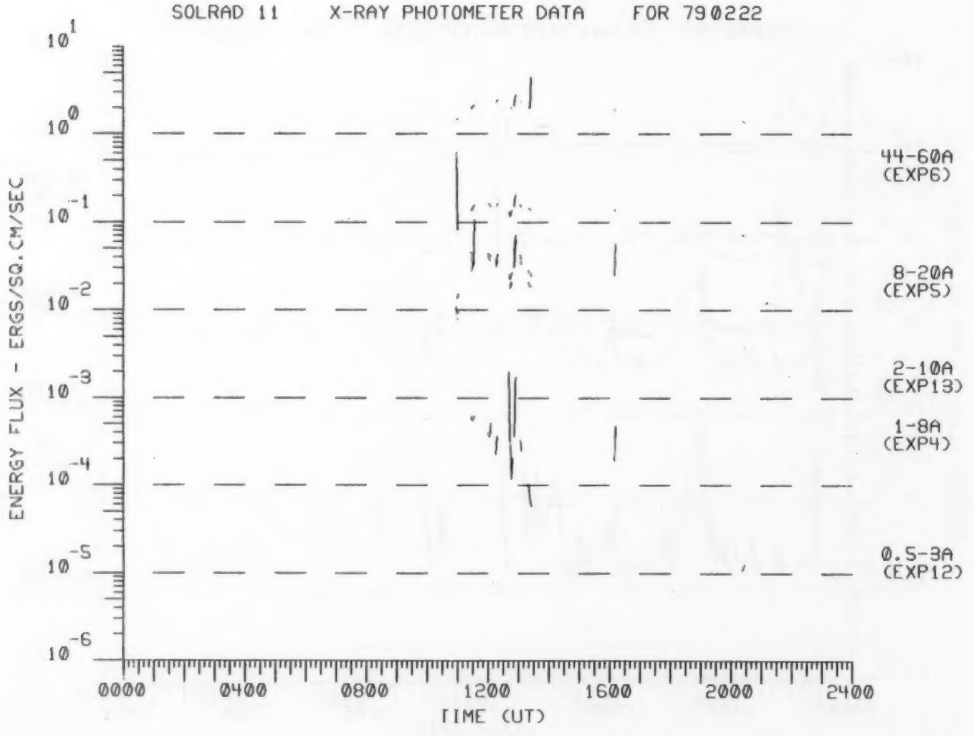
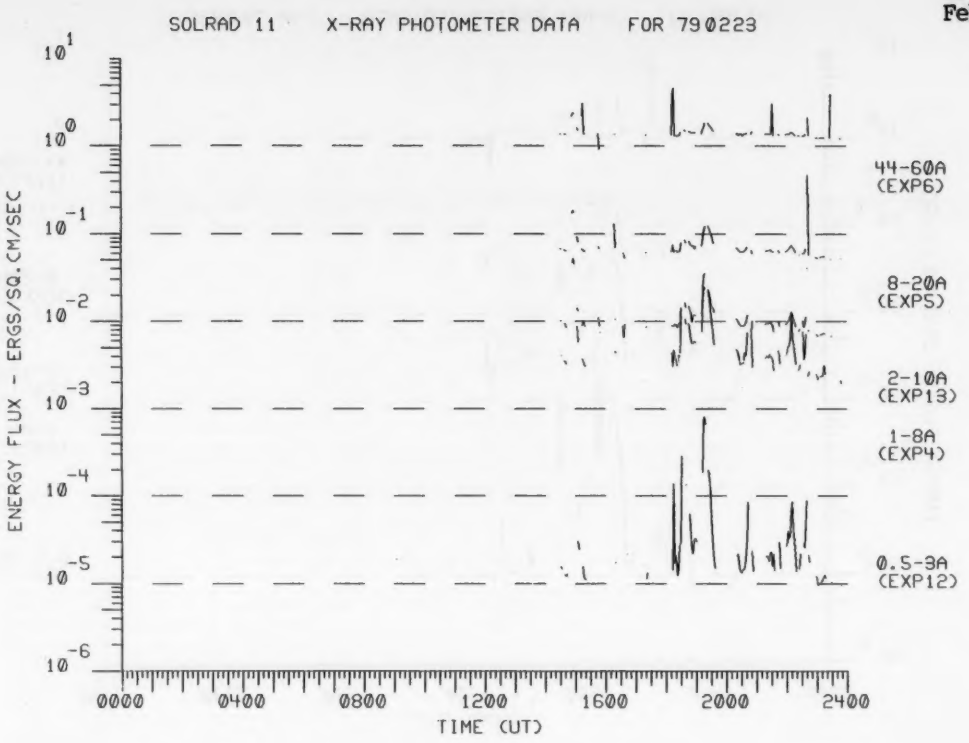
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790221
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790222
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790223
ENERGY FLUX - ERGS/SQ.CM/SEC
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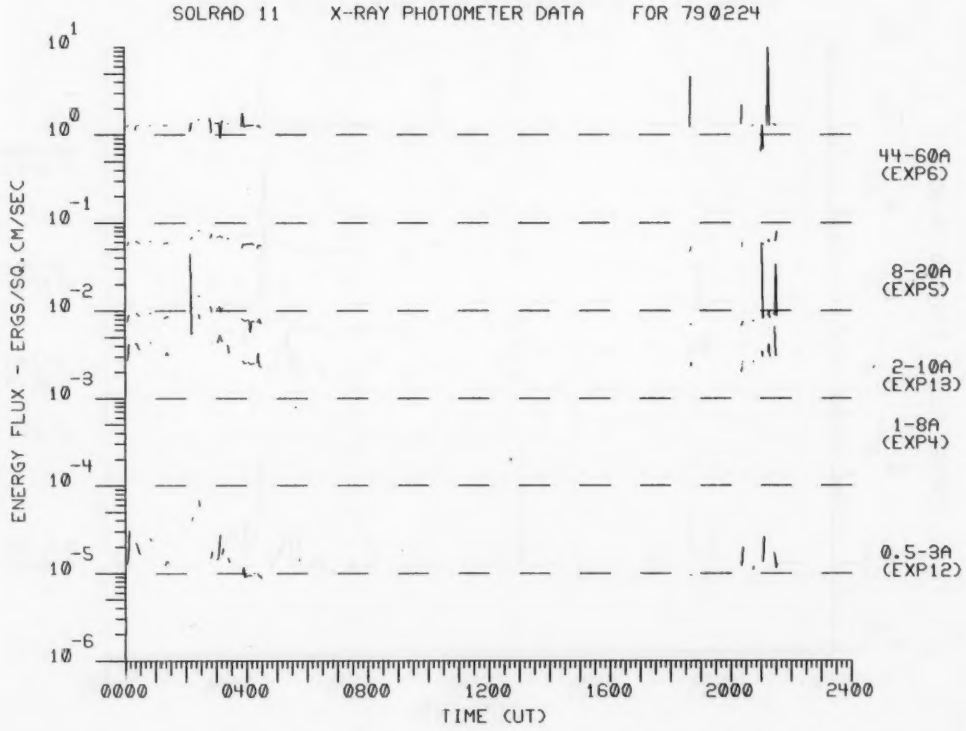
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790224
ENERGY FLUX - ERGS/SQ.CM/SEC
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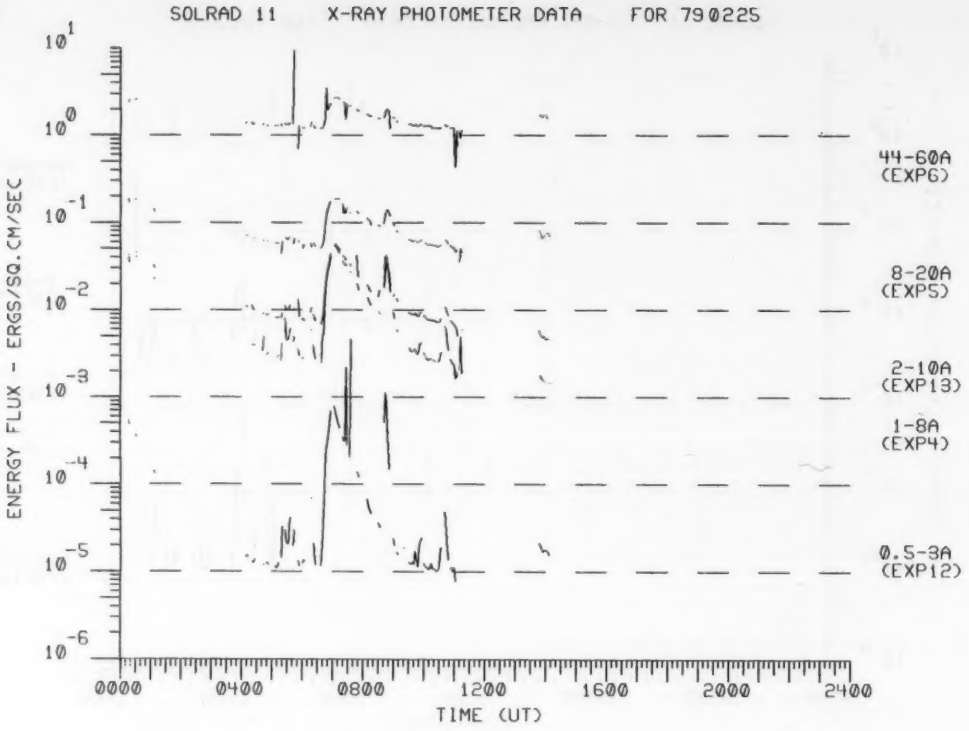
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790225
ENERGY FLUX - ERGS/SQ.CM/SEC
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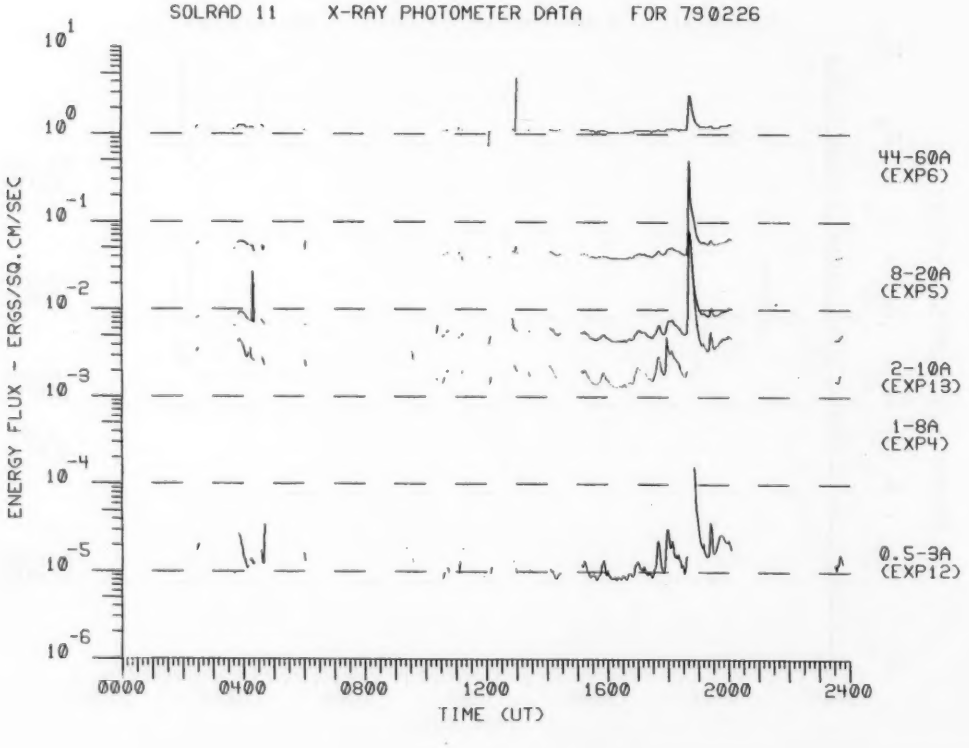
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790226
ENERGY FLUX - ERGS/SQ.CM/SEC
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10^{-1}
10^{-2}
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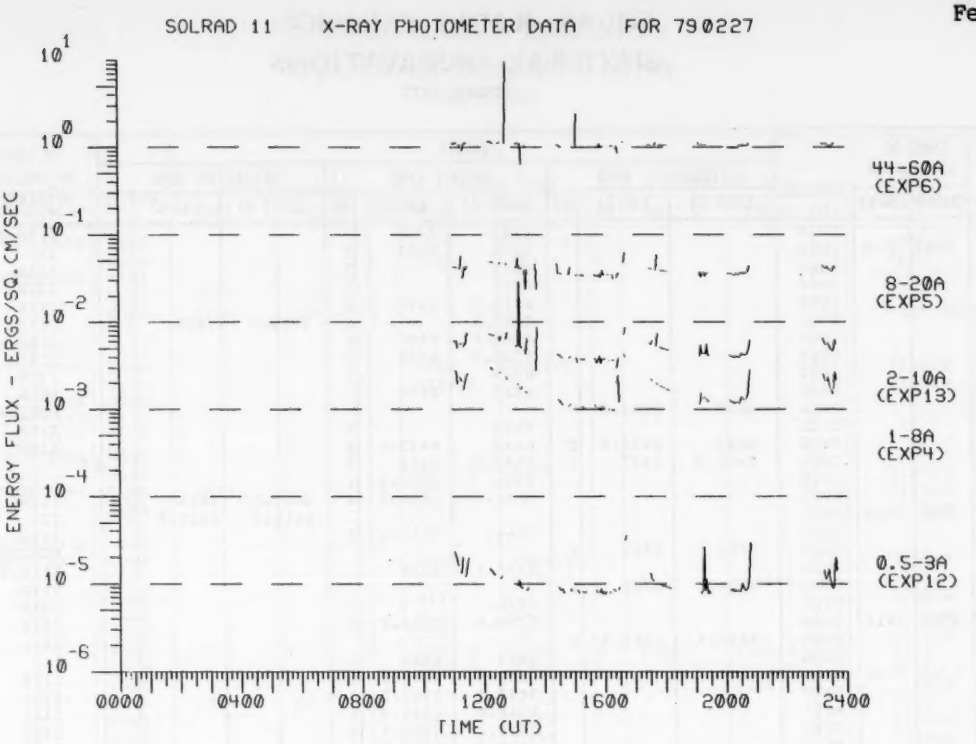
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790227
ENERGY FLUX - ERGS/SQ.CM/SEC
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10^{0}
10^{-1}
10^{-2}
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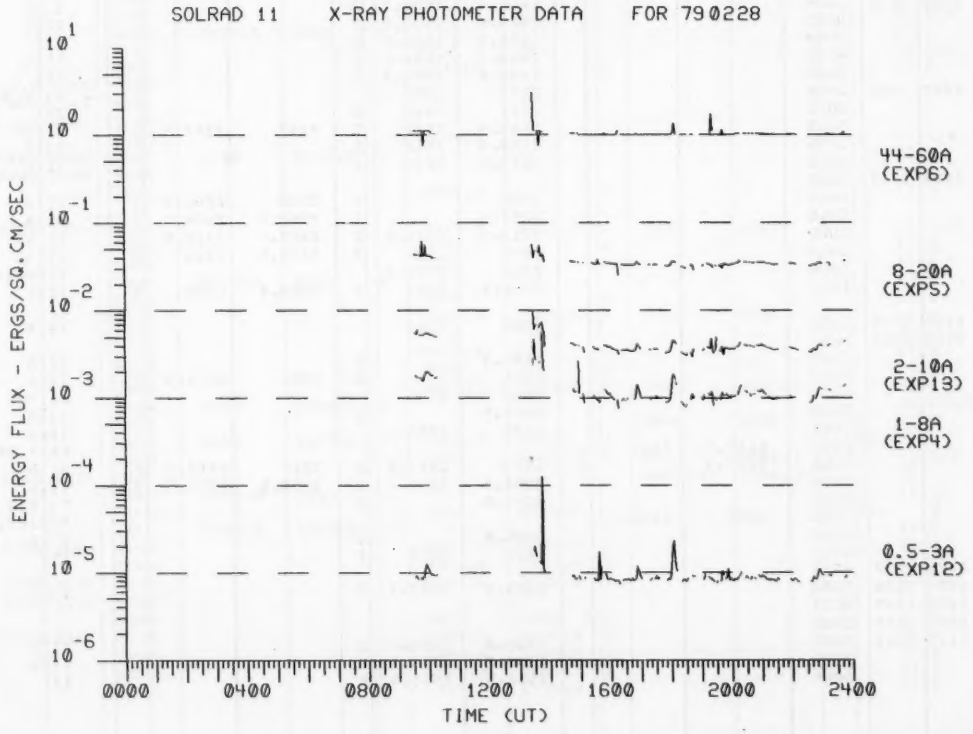
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790228
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
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10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS
FEBRUARY 1979

FEB 1979	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
01			CULG				0000	0745					IIIN,W
	0000	0745	CULG				0000	0338	1				IS
			CULG				0002		2				IIIB
			CULG				0016		1				IIIB
			CULG				0019.5	0020	1				IIIG
			CULG				0025.5		1	0025.5	0026	1	IIIB
			CULG				0056.5	0057	1				IIIB,U
			CULG				0203.5	0204	2				IIIG
			CULG				0325		1				IIIB
			CULG				0337	0745					IN,W
			CULG	0346	0346.5								FORIFT,W
			CULG				0400		2				IIIB
			CULG	0433	0433.5	2	0433	0433.5	2				IIIG
			CULG	0436.5	0437	2	0436.5	0440	2				II
			CULG				0536	0536.5	1				IIIG
			CULG				0612.5	0614.5	3	0612.5	0614	2	IIIGG
	0030	0920	MANI							0614.7	0615.0	1	III
			CULG				0644	0644.5	2				IIIG
			CULG	0702	0743	1							FORIFT,N
			CULG				0726.5	0727					IIIG,W,U
			CULG	0726.5	0727	1							IIIG
			CULG				0736		1				IIIB
	0734	1610	DURN				0758.0	0758.2	2				IIIG
			DURN	0807.1	0809.8	1							IIIG
			DURN				0820	1610	1				I
	0745	1545	WEIS				0825.6	0825.8	1				IIIB
			DURN				0859.4	0902.0	2				IIIG
			WEIS				0910.6	0911.3	1				IIIG
			WEIS				0925.3	0926.3	2				IIIG
			WEIS				1002.6	1002.8	3				IIIB
			WEIS				1003.8	1004.3	1				IIIG
	1202	2152	SGMR				1415.1	1506.0	2				IIIS
			WEIS				1429.5	1430.0	2				IIIG
			DURN				1448.0	1448.1	1				III
			WEIS				1450.3	1451.1	1				IIIG
			SGMR				2039.5	2039.9	1				III
	2045	2400	CULG				2045	2400					IIIN,W
			CULG				2117	2400	1				IS
			CULG				2145.5	2148	2	2147	2147.5	1	IIIGG
			CULG				2150.5	2152	1				IIIG
			CULG				2218.5	2219	1				IIIG
	2224	2400	MANI										
			CULG				2252		1	2252	2252.5	1	IIIB
			CULG				2253.5		1	2253.5	2254	1	IIIB
			CULG				2315.5	2318.5	2	2315.5	2318.5	2	IIIGG
			CULG				2322	2325	3	2322.5	2324	2	IIIGG
			CULG				2349	2352.5					IIIGG,W
			CULG				2358.5	2359	2	2358.5	2359	2	IIIB
02	0000	0746	CULG				0000	0140					IS,W
	0000	0920	MANI										
			CULG				0001.5		2				IIIB
			CULG				0024		2	0024	0024.5	2	IIIB
			CULG				0024	0746					IIIN,W
			CULG				0052.5		1				IIIB
			CULG				0139	0258					IN,W
			CULG	0145.5	0147	1							FAST DRIFT
			CULG	0217.5		1	0217	0217.5	2	0217	0217.5	2	IIIG
			CULG				0250.5	0251.5	2	0250.5	0251.5	2	IIIG
			CULG				0349.5		1				IIIB,U
			CULG	0455	0455.5								FORIFT,W
			CULG				0526.5		1				IIIB
			CULG				0658	0709	1				IS
	0748	1022	WEIS										
	0734	1026	DURN				1009.1	1009.7	2				IIIG
	1028	1545	WEIS										
	1201	2153	SGMR										
	1113	1612	DURN				1300.8	1302.0	2				IIIG
			DURN				1353.2	1353.2	2				IIIG
			DURN				1501.5	1501.5	2				III

SOLAR RADIO EMISSION
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FEB 1979	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
02	2045	2400	CULG				2052	2053.5					IIIG,W
			CULG				2204	2210	1				IIIN
	2225	2400	MANI										
			CULG	2231	2231.5	1							IIIB
			CULG	2304	2304.5	1							FAST DRIFT
03	0000	0933	MANI										
	0000	0746	CULG				0702	0702.5					IIIG,W
			CULG				0704.5						IIIB,W
	0733	0759	DURN										
	0944	1545	WEIS										
	1200	2154	SGMR										
	2225	2400	MANI										
			CULG				2238.5	2239					IIIG,W
	2045	2400	CULG	2238			2238						IIIB,W
			CULG				2302						IIIB,W
04	0000	0920	MANI										
	0000	0746	CULG				0005	0005.5					IIIG,W
			CULG				0119.5	0120.5	1	0120	0120.5	1	IIIG
			CULG				0124						IIIB,W
			CULG				0136	0136.5					IIIG,W
			CULG				0208	0209					IIIG,W
			CULG				0305.5	0306	1	0306	0306.5	1	IIIG
			CULG				0307.5	0308	1				IIIB
			CULG							0307.5	0308		IIIB,W
			CULG	0344	0344.5	1							IIIG
			CULG				0344	0345					IIIG,W
			CULG				0351	0357					IIIN,W
			CULG	0354	0354.5	1	0354	0354.5	3	0354.5	0350	2	IIIG
			CULG				0559.5						IIIB,W
			CULG				0607.5	0608					IIIG,W
			CULG	0607.5	0608	1							IIIG
			CULG				0621	0652					IIIN,W
			CULG				0635.5		1				IIIB
	0740	1615	DURN										
	0944	1548	WEIS										
	1159	2156	SGMR										
			CULG				2048.5						IIIB,W
	2046	2400	CULG	2048	2048.5	1							IIIG
	2228	2400	MANI										
			CULG				2317.5		2				IIIB
05	0000	0745	CULG				0017.5	0019.5	3	0018	0019	1	IIIG,U
			CULG				0033.5		1				IIIB
			CULG				0101		1				IIIB
			CULG	0150.5	0151	1							IIIG
			CULG				0246		1				IIIB
			CULG				0304.5	0305.5	2	0305	0306	2	IIIG
			CULG				0330	0640					IIIN,W
			CULG				0443.5		1				IIIB
			CULG				0455		1				IIIB
			CULG				0458.5	0459.5	2	0459	0459.5	2	IIIG
			CULG	0638	0641.5	1							IIIGG,RS
			CULG							0639	0701	1	S.W.F.
			CULG	0642	0645.5	2	0640.5	0646	3				II
			CULG				0644	0645.5	3	0644	0644.5	2	IIIG,V
	0000	0920	MANI							0645.1-	0645.3	1	III
			CULG	0646.5	0649.5	1							IIIGG
			CULG				0646	0704.5					II, W
			CULG	0735.5	0737.5	1							IIIG
	0734	1616	DURN				0855.4	0855.8	2				IIIG
			DURN				0901.8	0902.8	3				IIIGG
	0746	1000	WEIS				0901.8	0904.6	2				IIIGG
	1006	1549	WEIS										
			DURN				1027	1616 D	1				I,DC
	1158	2157	SGMR				1607.5	1621.0	2				IIIG
			DURN				1608.4	1609.0	2				IIIG
			SGMR				1641.0	1641.7	2				IIIG
			SGMR				1725.4	1725.8	2				IIIG

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FEB 1979	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
05			SGMR				1741.8	1742.0	2				IIIS
			SGMR				1907.1	1909.4	3				V
			SGMR				2013.3	2013.5	2				IIIG
	2046	2400	CULG				2049						IIIB,W
			CULG				2101	2204					IS,W
			CULG				2120	2143					IIIS,W
			CULG	2120	2126.5	2	2122	2128.5	2				II
			CULG				2121	2121.5	2	2121	2121.5	1	IIIG
			CULG				2125.5	2126	2	2125.5	2126	1	IIIG
			CULG	2130.5	2134	2	2130.5	2136	2				IV, P
			CULG				2130.5	2133.5	3	2131.5	2134	2	IIIG,V
			CULG				2134	2148	2				II
			CULG							2134	2146		S.W.F.,W
			CULG				2135.5	2137	1				IIIG
			CULG	2144	2144.5	1							IIIG,RS
			CULG	2148	2152	2	2148	2152	3	2149.5	2152.5	2	IIIGG,V
			CULG	2152	2154	1							FAST DRIFT
			CULG	2154	2154.5	1	2154	2156.5	1				IIIGG
			CULG				2204	2255	1				IS
	2227	2400	MANI										
			CULG				2229	2250					IIIS,W
			CULG				2247.5		1				IIIB
			CULG				2249		1				IIIB
			CULG				2255	2400					IS,W
			CULG				2333.5	2335	1	2333.5	2334.5	1	IIIG
			CULG	2343		1							IIIB
06	0000	0746	CULG				0000	0746					IS,W
			CULG				0020	0720					IIIN,W
			CULG	0108.5	0109		0108.5	0109					IIIG,W
			CULG				0122.5		1	0122.5		1	IIIB
			CULG				0127.5	0129.5	2				IIIGG
			CULG				0141	0142.5	1				IIIGG
			CULG				0154.5	0156.5	2	0155.5	0156.5	1	IIIG
			CULG	0158	0158.5	1	0157	0159.5	2				IIIGG
	0000	0928	MANI							0231.4	0232.4	2	III
			CULG	0241	0242	1	0241	0243.5	3	0241	0243.5	3	IIIG,V
			CULG	0243.5	0245	1	0244	0246.5	2				IIIGG
			CULG	0248	0248.5	1							IIIG
			CULG	0254.5	0255	1	0253	0256.5	2				IIIGG
			CULG				0304		1				IIIB
			CULG				0305		2				IIIB
			CULG	0358.5	0359	1	0357	0400	3	0357.5	0400	3	IIIGG
			CULG				0401.5	0402.5	1				IIIG
			MANI							0444.1	0445.0	1	IIIG
			CULG	0444.5	0445.5	2	0444.5	0446.5	3	0445	0446.5	3	IIIG,V
			CULG	0510.5	0511	1							IIIG
			CULG	0551.5	0552	2	0551.5	0552	1				IIIG
			CULG				0559	0701	1				IIIN
			CULG				0607.5	0611	3	0607.5	0610.5	3	IIIGG
			MANI							0607.6	0610.3	2	IIIG
			CULG				0637.5	0642	2				IIIGG
			CULG	0706		1	0704	0706	2				IIIG
			CULG				0707.5	0709.5	2				IIIG
			CULG				0721	0724	1				IIIG
	0733	1618	DURN	0802.6	0802.9	1							IIIG
	0742	1552	WEIS				0809.5	0811.6	2				IIIG
			DURN	0822.9	0823.1	1	0822.8	0823.3	3				IIIGG
			DURN				0832.7	0832.8	1				IIIG
			WEIS				0833.3	0836.2	2				IIIGG
			MANI							0834.4	0835.6	1	III
			WEIS				0843.2	0845.6	2				IIIG
			WEIS				0910.4	0910.8	2				IIIG
			DURN				0915.0	0917.3	3				IIIGG,RS
			WEIS				0915.2	0916.3	2				IIIGG,U
			WEIS				0922.7	0922.7	1				IIIB
			WEIS				0928.7	0928.8	1				IIIB
			WEIS				0947.7	0949.2	2				IIIGG
			WEIS				1022.0	1026.9	2				IIIG
			DURN				1022.0	1022.1	1				IIIG

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FEB 1979	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
06			DURN				1023.5	1023.5	2				III
			WEIS				1041.7	1042.0	2				IIIB
			WEIS				1054.5	1054.6	2				IIIB
			WEIS				1126.8	1127.3	1				IIIG
			WEIS				1143.4	1143.6	2				IIIB
			WEIS				1254.5	1256.3	2				IIIG
	1157	2158	SGMR				1254.5	1256.6	2				IIIG
			WEIS				1347.7	1349.5	2				IIIG
			SGMR				1347.8	1349.9	3				IIIG
			SGMR				1619.3	1620.0	2				IIIG
	2046	2400	CULG	2055	2055.5	1							IIIG,RS
			CULG				2113	2114	2				IIIG
			CULG				2116		2				IIIB
			CULG				2138	2138.5	1				IIIG
			CULG				2203	2400					IIIN,W
			CULG	2218	2218.5	2	2218	2218.5	2				IIIG
	2231	2400	MANI										
			CULG	2244	2244.5	1	2244	2244.5	2				IIIG
			CULG	2334.5	2335.5	2	2334.5	2335	2	2335	2335.5	2	IIIG
			CULG				2338	2338.5	1				IIIG
07	0000	0746	CULG				0005	0746					IIIN,W
			CULG				0209.5	0211	2				IIIG
			CULG				0227		1				IIIB
	0000	0925	MANI							0250.5	0250.7	2	III
			CULG				0250	0252	3	0250	0251.5	3	IIIGG
			CULG	0315.5	0316	1							IIIG
			CULG	0318		1	0318		2				IIIB
			CULG				0406.5	0407	2				IIIG
			CULG				0531.5	0532	1				IIIG
			CULG				0544	0545	2				IIIG
			CULG				0639.5		1				IIIB
			CULG				0656.5	0657	1				IIIG
			CULG				0720.5	0721.5	2				IIIG
			CULG	0726	0726.5	2	0726	0726.5	1				IIIG
	0734	1620	DURN										
	0734	1325	WEIS				0821.1	0821.4	2				IIIB
			WEIS				0851.7	0852.9	1				IIIG
			WEIS				1039.2	1039.6	2				IIIG
	1156	2200	SGMR										
	1333	1554	WEIS										
	2046	2400	CULG										
	2227	2400	MANI										
			CULG				2251.5		1				IIIB
08	0000	0928	MANI										
	0000	0746	CULG				0026.5	0030.5	2				IIIGG
			CULG				0032	0746					IIIN,W
			CULG				0104	0104.5	1				IIIG
			CULG				0123.5	0124	1	0123.5	0124	1	IIIG
			CULG				0143	0144	1	0143	0143.5	1	IIIG
			CULG							0207	0218	1	S.W.F.
			CULG				0224	0450					IS,W
			CULG				0242	0746	1				CONT
			CULG				0243	0244	1				IIIG
			CULG				0244	0247	1				P
			CULG				0450	0746	1				IS
			CULG				0527.5	0528	2				IIIG
			CULG	0537.5		1							FAST DRIFT
	0734	1621	DURN				0734.7	0735.2	1				IIIG
	1154	2201	SGMR										
	0718	1555	WEIS				1233.0	1233.3	1				IIIB
			WEIS				1317.8	1318.8	2				IIIG
			WEIS				1338.3	1338.5	1				IIIG
			DURN				1338.5	1338.6	2				III
			DURN				1407.5	1407.9	2				IIIGG
			WEIS				1407.6	1408.2	2				IIIG
			DURN	1545.4	1545.5	2							IIIG
	2046	2400	CULG				2046	2400	1				IS
			CULG				2049	2400					IIIN,W

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08			CULG	2227.5		1							IIIB,RS
	2228	2400	MANI										
			CULG				2232	2244	1				IIIS
			CULG				2237	2338.5	2	2237.5	2338.5	2	IIIGG
			CULG	2239.5	2240	1							IIIGG
			CULG				2242	2243	1				IIF OSSIBLE
			CULG				2246.5		1				IIIB
			CULG	2249.5	2250	2							IIIG
			CULG	2303	2303.5	2							IIIGG
			CULG				2324.5		1				IIIB
			CULG				2345.5		1				IIIB
			CULG				2346.5	2347					IIIG,W
			CULG	2346.5	2347	1							IIIG
			CULG	2355.5	2356.5								FORIFT,W
09	0000	0746	CULG				0000	0125					IS,W
	0000	0928	MANI										
			CULG				0005	0746					IIIN,W
			CULG				0006.5		1				IIIB
			CULG	0109	0110								IIIGG,W
			CULG				0125	0746	1				IS,DC
			CULG				0138	0138.5					IIIG,W
			CULG	0138	0138.5	1							IIIG
			CULG	0143.5	0151								IIIG,N,W
			CULG	0157	0157.5	1							IIIG
			CULG	0222.5	0223	1							IIIG
			CULG				0222.5						IIIB,W
			CULG	0227		1							IIIB
			CULG				0237.5	0239.5	2	0238	0239	2	IIIG
			CULG	0246.5		1	0245.5	0246	2				IIIG
			CULG				0247.5		2				IIIB
			CULG	0346	0346.5	1	0346	0346.5	1				IIIG
			CULG				0351		1				IIIB
			CULG	0406	0406.5	1							IIIG
			CULG	0410	0410.5	1							IIIG
			CULG				0631.5		1				IIIB
			CULG				0636.5		1				IIIB
	0733	1622	DURN				0819	1522	1				I,DC
	0716	1557	WEIS				0903.3	0903.8	1				IIIG
			WEIS				0905.8	0907.5	2				IIIG
			WEIS				1102.8	1103.0	1				IIIB
			WEIS				1314.4	1314.6	1				IIIB
			WEIS				1319.2	1319.3	1				IIIB
			WEIS				1323.7	1323.8	1				IIIG
			WEIS				1511.8	1512.0	1				IIIU
			WEIS				1515.1	1515.4	1				IIIG
	1153	2202	SGMR				1859.9	1901.0	1				IIIG
	2046	2400	CULG				2051	2333					IIIN,W
			CULG				2105		1				IIIB
			CULG				2134.5		1				IIIB
			CULG	2145.5		1	2144.5	2146.5	2				IIIG,V
			CULG	2148	2150.5	1	2148	2150.5	2	2150.5		1	IIIGG
	2225	2400	MANI										
			CULG				2328	2329.5	2				IIIG
10	0000	0924	MANI										
	0000	0743	CULG				0027.5	0028	1				IIIG
			CULG				0032.5	0034	3	0033	0033.5	1	IIIG
			CULG				0034.5	0039	2				IIIGG,U
			CULG				0041	0743					IIIN,W
			CULG				0221.5		1				IIIB
			CULG				0311	0313.5	2	0311	0313	2	IIIGG,U
			CULG				0334.5	0335	1				IIIG
			CULG				0447	0448	2				IIIG
			CULG				0513.5		1				IIIB
			CULG				0515	0516.5	2				IIIG
			CULG				0543	0543.5	1				IIIG
			CULG				0552	0553.5	2				IIIG
			CULG	0558	0600	1							I
			CULG	0651.5		2	0652	0652.5	1				IIIG,U

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FEB 1979	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
10			CULG	0719.5		1							FAST DRIFT
			CULG				0722.5	0723	1				IIIB
			CULG				0724.5	0727	3				IIIG,V
	0734	0939	DURN				0756.2	0756.5	2				IIIG
	0848	1559	WEIS				0938.1	0938.3	1				IIIG
	1017	1623	DURN										
			WEIS				1021.2	1021.3	1				IIIB
			WEIS				1022.4	1022.6	1				IIIB
			WEIS				1028.9	1029.2	2				IIIG
			WEIS				1047.0	1047.3	2				IIIB
			WEIS				1222.0	1222.6	2				IIIG
			WEIS				1425.9	1426.0	1				IIIB
	1152	2204	SGMR				1513.5	1515.8	2				IIIG
			WEIS				1518.7	1519.3	2				IIIG
			WEIS				1519.3	1514.9	2				IIIG
	2046	2400	CULG				2117.5	2122.5	1				IIIN
			CULG				2118	2119	2				IIIG
			CULG				2155	2400					IIIN,W
	2226	2400	MANI										
			CULG				2243	2243.5	2	2243	2243.5	2	IIIG
			CULG				2245.5	2246.5	2	2245.5	2246.5	2	IIIG
			CULG				2348	2351.5	2	2348	2351.5	2	IIIGG
11	0000	0746	CULG				0000	0746					IIIN,W
			CULG				0023.5	0025	1				IIIG
			CULG				0032	0034	2	0032	0033.5	1	IIIG
			CULG				0037	0039	3	0037.5	0038.5	2	IIIGG
			CULG	0108.5	0109	1	0108.5	0109	1				IIIG
			CULG				0153.5	0155	3	0154	0155	3	IIIGG
	0000	0758	MANI							0154.0	0154.5	1	III
			CULG				0155	0157	1	0156	0156.5	1	IIIG
			CULG	0224	0224.5	1	0224	0225	2				IIIG
			CULG				0336		1	0336		1	IIIB
			CULG				0418	0419	1				IIIG
			CULG	0515	0515.5	1	0515	0515.5	1				IIIG
			CULG				0536.5	0746	1				IIIG,N
			CULG	0600	0601	2							IIIG,U
			CULG	0604	0605	2							IIIG
			CULG				0632	0633	2				IIIG,V
			CULG				0711	0712	2				IIIG,U
	0713	1604	WEIS				0841.0	1600.0	1				IIIN
			WEIS				0910.8	0911.0	2				IIIB
			WEIS				0917.9	0918.0	2				IIIG
			WEIS				0924.7	0924.8	3				IIIB
			WEIS				1028.1	1028.3	3				IIIG
	0734	1624	DURN				1050	1624 D	1				I
			WEIS				1103.2	1103.8	3				IIIG
			DURN				1123.9	1123.9	1				III
	1151	2205	SGMR										
			WEIS				1222.5	1222.6	3				IIIU
			WEIS				1230.5	1238.9	2				IIIGG
	2046	2400	CULG				2046	2108					IIIS,W
			CULG				2046	2400	1				IS
			CULG	2046	2201								IN,W
			CULG				2108	2121	1				IIIS,U
			CULG				2132	2142	1				IIIS,U
			CULG				2142	2400					IIIN,W
			CULG	2158.5			2158.5						IIIB,W
			CULG				2205.5	2400	1				IIIG,N
			CULG	2344	2400	1							IS
	2345	2400	MANI										
12			CULG	0000	0127								IN,W
			CULG				0000	0046	1				IS
	0000	0746	CULG				0000	0043					IIIN,W
			CULG							0018	0250		S.W.F.,W
			CULG				0020	0021	2				IIIG
			CULG	0032.5	0033.5	1							I
			CULG				0033		2				IIIB
			CULG				0034.5	0035.5	1				IIIG

SOLAR RADIO EMISSION
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FEB 1979	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
12			CULG				0043	0236	2				IIIS
			CULG				0044	0746	1				N,RS,DP
			CULG				0046	0245	2				IS,C,DC
			CULG	0127	0148	1							IS
			CULG	0206.5	0207	2							IIIG
	0000	0927	MANI							0213.4	0214.7	2	III
			CULG	0213	0216	3	0213	0215.5	3	0213.5	0215.5	3	IIIG,V
			CULG				0220	0223	1				IIF OSSIBLE
			CULG				0231.5		3	0231.5		2	IIIB
			CULG				0232		2	0232		2	IIIB
			CULG	0235	0235.5	2							IIIG
			CULG				0236	0550					IIIN,W
			CULG	0242		1	0242		1				IIIB
			CULG				0245	0600	1				IS,DC
			CULG				0323		2				IIIB
			CULG				0323	0746	2				IIIN,U
			CULG				0323	0746	2				IIIN
			MANI							0344.0	0344.3	1	III
			CULG	0345	0345.5	1	0344.5	0346	3	0345.5	0346	2	IIIG,V
			CULG				0401.5	0402.5	2	0402	0402.5	1	IIIG
			CULG				0538.5	0540	2				IIIG,V
			CULG				0550	0746	1				IIIS
			CULG				0600	0746	2				IS,DC
			CULG				0657	0658	2				IIIG,V
	1121	1602	WEIS				0722.0	1529.0	3				IIIS
			CULG				0722	0725.5	3				IIIG,V
	0716	1116	WEIS				0730.0	1555.0	3				IS
	0733	1502	DURN				0733 E	1502 D	1				I,DC
			WEIS				0811.2	0814.7	3				IIIGG
			MANI							0811.4	0811.8	1	III
			DURN	0811.5	0813.0	3	0811.2	0814.8	3				IIIGG,RS
			WEIS				0919.9	0921.5	2				V
			DURN	1030.6	1031.2	1	1030.6	1031.2	2				IIIG
			WEIS				1103.0	1100.8	3				IIIG
			WEIS				1104.6	1105.0	3				IIIG
			WEIS				1153.4	1154.2	3				IIIG
	1149	2206	SGMR				1204.2	1205.9	2				IIIG
			WEIS				1204.4	1205.8	3				IIIG
			SGMR				1533.2	1533.9	1				IIIG
			SGMR				1946.9	1951.0	1				V
	2046	2122	CULG				2046	2122	1				IS
			CULG				2046	2122					IIIS,W
			CULG				2051	2053.5	2	2051.5	2053.5	2	IIIG
			CULG				2055	2056	2				IIIG
			CULG				2114.5	2115	3				IIIG
	2222	2400	MANI										
			CULG				2307	2400					IIIN,W
	2307	2400	CULG				2307	2400	1				IS,C
			CULG				2350.5	2353	2				IIIG,V
13	0000	0746	CULG				0000	0020	1				IS,C
			CULG				0000	0746					IIIN,W
			CULG				0002.5	0004	1				IIIG,V
			CULG				0020	0210	1				IS
	0000	0918	MANI							0025.4	0025.7	1	III
			CULG	0025.5	0026.5	1	0024	0028	3				IIIGG,V
			CULG	0030.5	0032	1	0031	0032	1				IIIG
			CULG	0035	0038	1	0035	0039	3	0035.5	0038.5	3	IIIGG,V
			MANI							0036.9	0037.7	1	III
			CULG				0140	0141	1				IIIG
			CULG	0146	0147.5								IIIG,W
			CULG				0153.5	0158	2	0156.5	0157	1	IIIGG
			MANI							0204.9	0205.1	1	III
			CULG				0204	0204.5	3	0204	0204.5	3	IIIG
			CULG				0210	0746					IS,W
			CULG				0212	0216	1	0214.5	0215	1	IIIG
			CULG	0230.5	0231	1	0230.5	0231	1				IIIG
			CULG				0234.5	0235.5	2	0235	0235.5	1	IIIG
			CULG	0238.5	0239.5	2	0238.5	0240.5	3	0239	0240.5	3	IIIG,V
			MANI							0238.8	0242.2	2	III

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FEB 1979	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
13			CULG				0441	0746	1				IIIN
	0709	1439	WEIS				0754.0	1515.0	2				IIIN
	0656	1625	DURN				0805	0950	1				I,DC
			WEIS				0950.7	0951.2	3				IIIU
			WEIS				0952.7	0953.5	3				IIIG
			DURN				0952.7	0953.0	3				IIIG
			WEIS				1100.7	1101.4	3				IIIG,U
			WEIS				1131.5	1139.0	3				IIIGG,UUU
			DURN				1136.1	1137.8	3				IIIGG
	1148	1630	SGMR										
			WEIS				1155.4	1155.7	2				IIIU
			WEIS				1203.4	1205.6	3				IIIG
			DURN				1203.4	1204.9	2				IIIG
			DURN	1228.7	1230.1	3							IIIG
			WEIS				1229.0	1229.4	2				IIIU
	1441	1604	WEIS										
	2023	2208	SGMR										
			CULG				2046	2400					IN,W
	2046	2400	CULG				2046	2400					IIIS,W
			CULG				2117.5		1				IIIB
	2227	2400	MANI										
14	0000	0934	MANI										
	0000	0746	CULG				0000	0146					IS,W
			CULG				0000	0746					IIIS,W
			CULG				0019	0037	1				IIIN
			CULG	0134	0135.5	1							I IIG
			CULG				013E		1	0136		1	IIIB
			CULG				0307.5	0308	2				IIIG
			CULG				0534	0611	1				IIIG,N
			CULG				0613	0613.5	2				IIIG
	0654	0910	DURN										
	0707	1330	WEIS				0736.6	0736.7	1				IIIB
			WEIS				0750.4	0750.5	2				IIIB
			WEIS				0752.6	0753.7	3				IIIGG
			WEIS				0933.7	0935.2	3				IIIG
			WEIS				1136.8	1137.9	3				IIIG
			WEIS				1315.9	1316.2	2				IIIG
			WEIS				1325.2	1325.7	3				IIIG
	1147	2209	SGMR				1325.2	1325.7	2				V
	1408	1604	WEIS				1444.0	1444.2	1				IIIB
			WEIS				1518.0	1526.3	2				IIIGG
			WEIS				1537.6	1537.7	1				IIIB
			WEIS				1600.1	1602.2	2				I IIG
			SGMR				1852.0	1852.6	3				V
	2046	2400	CULG				2046	2400					IIIN,W
			CULG				2101	2102	3				IIIB,U
			CULG	2102.5		2	2102.5	2103	3				IIIB,U
			CULG				2136	2202	1				IS
			CULG				2139	2139.5	1				IIIG
			CULG				2142.5	2143.5	3	2142.5	2143	2	IIIG,U
	2221	2400	MANI										
			CULG				2222.5	2223	1				IIIG
			CULG							2222.5	2223		IIIG,W
			CULG				2224		1				IIIB
			CULG				2230.5		2	2230.5		1	IIIB
			CULG				2256.7	2257	1				IIIG
			CULG				2331		2				IIIB
			CULG				2337.5	2338.5	2				I IIG
			CULG	2356.5	2357.5	2							IIIG
15	0000	0920	MANI										
	0000	0746	CULG				0007	0008.5	1				IIIG
			CULG	0056.5		1							IIIB
			CULG				0102	0746					IIIN,W
			CULG				0103	0104	1				IIIG
			CULG	0106	0107	2							IIIG
			CULG				0114	0225	1				IS
			CULG				0139.5	0142.5	1	0140	0142.5	1	IIIG
			CULG				0205		1	0205	0205.5	1	IIIB

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FEB 1979	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
15			CULG				0225	0746	1				IN
			CULG							0246	0319		IIIN,W
			CULG				0246	0246.5	2				IIIG
			CULG				0310	0746	1				IIIG,N
			CULG	0325	0325.5	2							FAST DRIFT
			CULG	0338	0338.5	2							FAST DRIFT
			CULG	0339.5	0340	1							FAST DRIFT
			CULG				0355	0356.5	2				IIIG
			CULG				0414		2	0414		1	IIIB
			CULG				0415.5		2	0415.5		1	IIIB
			CULG	0419	0420	2	0419.5		1				IIIG
			CULG				0427		2	0427	0428	2	IIIB
			CULG	0453	0455.5	1							IIIG
			CULG				0547.5	0548	2				IIIG
			CULG	0633	0633.5	2							FAST DRIFT
			CULG	0637.5	0638	2							FAST DRIFT
	0700	1628	DURN				0735.0	0736.9	3				IIIG
	0705	1607	WEIS				0735.1	0736.8	1				IIIG
			CULG	0736.5	0737	2	0736.5	0737	1				IIIG
			WEIS				0749.4	0752.6	2				IIIGG
			WEIS				0800.7	0801.0	2				IIIG
			DURN				0803.4	0803.6	2				IIIG
			WEIS				0805.6	0808.6	2				IIIG
			WEIS				0825.3	0826.1	2				IIIG
			DURN				0850.2	0852.6	1				IIIG
			DURN	0857.6	0857.6	2							III
			WEIS				0924.5	0927.5	2				IIIG
			WEIS				0947.9	0948.1	2				IIIB
			WEIS				0950.6	0950.7	2				IIIB
			WEIS				0952.3	0958.3	2				IIIGG,RS
			DURN	0955.5	0955.6	3	0953.6	0956.1	3				IIIGG
			DURN				1139.2	1139.4	3				IIIG
			WEIS				1139.4	1139.5	2				IIIG
	1145	2210	SGMR										
			WEIS				1200.0	1202.4	2				IIIG
			WEIS				1210.3	1210.4	2				IIIB
			WEIS				1213.5	1213.6	2				IIIB
			WEIS				1307.6	1309.3	2				IIIG
	2205	2400	CULG				2205	2400					IIIS,W
	2217	2400	MANI										
			CULG				2231.5	2233	2	2232	2232.5	1	IIIGG
			CULG							2259	2259.5	1	IIIB
			CULG				2259						IIIB,W
			CULG				2314	2315	1				IIIG
			CULG				2348	2349	2				IIIG
			CULG				2358	2358.5	1				IIIG
16	0000	0746	CULG				0000	0442					IIIN,W
			CULG	0012.5		1							IIIB
			CULG				0023	0746	1				IS
			CULG				0037						IIIB,W
			CULG	0037		1							IIIB
			CULG				0106.5	0107	1				IIIB,U
			CULG	0110.5	0111.5	1	0110.5	0111.5	2				IIIG
			CULG	0113		1	0113	0114	3				IIIG
			CULG				0125	0126	2				IIIGG
			CULG	0148.5	0149	1	0148.5	0149	2				IIIG,U
			CULG							0148	0244	3	S.W.F.
			CULG	0149.5	0152	2	0149.5	0231.5	3	0154	0158	1	II, H
			CULG	0150.5	0152	1	0149.5	0328	1				IV
	0000	0925	MANI							0153.0	0203.2	2	IIIG
			CULG				0154.5	0156	2	0154.5	0155	2	IIIGG
			MANI							0211.8	0215.7	1	IIIG
			CULG	0220	0249	1							IV
			CULG	0302	0303.5	1	0301.5	0309	2	0303	0304	3	IIIGG
			MANI							0305.5	0306.0	1	III
			CULG				0337	0338	1				IIIG
			CULG				0344	0346.5	2				IIIGG
			CULG				0442	0746					IIIS,W
			CULG	0446	0446.5	2							FAST DRIFT

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FEB 1979	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
16			CULG	0525	0525.5	2							IIIG
			CULG				0534	0631	1				IIIG,N
			CULG	0617	0617.5	1	0616.5	0617.5	2				IIIG
			CULG				0621		2				IIIB
			CULG	0626	0627	1	0626	0627	2				IIIG
	0651	1111	DURN	0703.0	0703.4								IIIG
	0703	1530	WEIS				0745.7	0746.7	1				IIIG
			WEIS				0745.7	1630.0	1				IN
			DURN				0745	1111	1				I,DC
			WEIS				0753.2	0754.4	2				IIIG
			WEIS				0804.7	0805.1	1				IIIG
			DURN				0804.7	0804.8	2				III
			WEIS				0826.8	0827.0	1				IIIG
			WEIS				0925.8	0926.2	2				IIIG
			DURN	0925.9	0926.0	3	0925.9	0926.0	3				IIIG
			WEIS				0931.3	0931.5	1				IIIG
			WEIS				0959.5	0959.8	1				IIIG
			WEIS				1005.6	1007.1	3				IIIG
			DURN				1006.4	1006.6	2				IIIG
			WEIS				1040.5	1041.9	2				IIIG
			WEIS				1103.3	1114.3	3				IIIGG,U
			DURN				1103.6	1104.0	3				IIIG
			DURN				1107.7	1110.6	3				IIIGG
			DURN	1108.4	1108.6	3							DCIM
			DURN				1109.0	1110.6	3				IIIGG
			WEIS				1117.9	1120.5	2				IIIG,RS
	1140	1630	DURN				1140 E	1630 D	1				I
			WEIS				1215.4	1215.7	2				IIIG
			WEIS				1221.3	1221.4	2				IIIG
			WEIS	1225.9	1227.3	2	1225.9	1227.3	2				IIIG
			WEIS				1243.2	1259.2	3				IIIGG
			DURN	1247.3	1258.0								DCIM
	1144	2212	SGMR				1255.2	1258.9	2				V
			DURN				1255.4	1256.8	3				IIIGG
			WEIS				1314.8	1314.9	2				IIIB
			WEIS				1326.2	1329.3	2				IIIG
			WEIS				1333.2	1337.7	2				IIIG
			WEIS				1355.7	1355.8	1				IIIB
			WEIS				1401.4	1401.5	2				IIIB
			WEIS				1411.5	1413.4	3				IIIG
			DURN				1411.5	1411.5	2				IIIG
			WEIS				1444.6	1446.0	3				IIIG
			WEIS				1503.9	1504.2	3				IIIG
			SGMR				1504.0	1601.0	2				IIIS
			WEIS				1507.7	1507.9	2				IIIG
			WEIS				1509.4	1512.4	2				IIIGG,U
			WEIS				1519.6	1521.3	3				IIIG
			SGMR				1519.7	1521.0	3				V
			DURN	1519.8	1519.9	1	1519.6	1520.1	3				IIIG
			DURN	1525.8	1526.3	2	1525.8	1526.6	3				IIIGG
			WEIS				1525.8	1528.7	3				IIIGG,RS
			DURN	1529.9	1530.1	3	1529.9	1530.1	3				IIIG
			DURN	1535.1	1535.1	2							III
			SGMR				1722.0	1904.0	3				IIIS
			SGMR				1955.5	1956.2	3				V
	2046	2400	CULG				2046	2302	1				IIIS
			CULG	2050.5	2052	2							FAST DRIFT
			SGMR				2137.8	2153.2	2				IIIS
			CULG	2138	2226	2	2138	2225	3	2138	2225	2	IIIG,N
			CULG				2139	2400	1				IS
			CULG	2217.5	2228	2							FAST DRIFT
			CULG	2235	2236	3							FAST DRIFT
			CULG	2235	2256	2	2235	2304	3	2235	2304	3	IIIG,VN
	2220	2400	MANI							2245.3	2247.6	1	IIIG
			CULG	2254.5	2255.5	2							FAST DRIFT
			CULG				2302	2400	1				IIIS
			CULG	2302	2304.5	2							FAST DRIFT
			CULG	2314	2400	1							IS
			CULG				2332	2332.5	2				RS,DP
17			CULG				0000	0022	1				IIIS

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FEB 1979	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
17	0000	0022	CULG	0000	0022	1							IN
			CULG	0015	0015.5	2							III
			CULG	0018	0019	1	0018	0019.5	2				IIIGG
	0000	0932	MANI							0030.2	0030.6	1	III
			MANI							0044.7	0044.8	1	III
			CULG				0113	0746	1				IIIS
	0113	0746	CULG	0113	0746	1	0113	0746	1				IS
			CULG				0205	0746	1				N,RS,DP
			CULG	0232.5	0241	1	0232.5	0242	3	0232.5	0242	3	IIIGG
			MANI							0232.7	0241.5	2	IIIG
			CULG	0233	0243	3							FAST DRIFT
			CULG							0234	0305	2	S.W.F.
			CULG	0247	0251	1	0247	0732	2				IIIG,N
			CULG	0312	0438	1							FDRIFT,N
			CULG	0345.5	0346	2	0345.5	0346	2	0345.5	0346	2	IIIG
			CULG				0403.5	0404.5	3	0403.5	0404	2	IIIG
			MANI							0403.9	0404.0	1	III
			CULG				0536.5		3				IIIB
			CULG				0627.5	0629	3				IIIG
			CULG				0648.5		2				IIIB
	0650	1631	DURN				0650 E	1631 D	2				I,DC
			DURN				0810.6	0811.0	3				UNCL
			DURN				0813.0	0813.8	3				IIIGG
	0913	1610	WEIS				0913.0	1609.0	2				IS,DC
			WEIS				0915.0	1558.0	2				IIIN
			WEIS				1130.7	1130.9	2				IIIG
			WEIS				1246.6	1248.8	2				IIIGG
	1142	2213	SGMR				1246.9	1247.8	1				V
			SGMR				1438.6	1439.8	1				V
			SGMR				1505.1	1508.9	1				IIIG
			SGMR				1905.6	1906.3	1				V
			SGMR				1925.9	2213.0D	1				CONT
	2046	2400	CULG				2046	2400	2				IIIS
			CULG				2046	2400	2				IS,C,DC
			CULG				2046	2400	1				RS,DP
			CULG	2110	2400	1							IS
	2220	2400	MANI										
18	0000	0746	CULG	0000	0216								IS,W
			CULG				0000	0746	2				IS,C,DC
			CULG				0000	0746	2				RS,DP
			CULG				0000	0746	2				IIIS
			CULG							0008	0746	1	IIIN
			CULG	0216	0746	1							IS
			CULG	0351.5		1	0351.5	0352	3	0351.5	0352	3	IIIB
	0000	0925	MANI							0351.7	0351.8	1	III
			MANI							0451.5	0451.6	1	III
			CULG	0525	0525.5	1							IIIG
			CULG	0533.5	0534	2	0533.5		2				IIIG
			CULG	0640.5	0641	1							FAST DRIFT
			CULG	0642	0644.5	2	0643	0704.5	3				IIH
			CULG							0644	0652	1	S.W.F.
			CULG	0645	0646	2							FAST DRIFT
	0650	1500	DURN				0650 E	1500 D	2				I,DC,C
			MANI							0652.6	0653.0	1	III
			MANI							0658.0	0700.3	1	IIIG
	0659	1611	WEIS				0702	1609	2				IS,CONT
			WEIS				0705	1607	2				IIIS,DP
	1141	2214	SGMR				1141.0E	2214.0D	1				CONT
			DURN	1159	1233	2							DCIM,N
			SGMR				1637.0	1711.0	3				IV
			CULG				2046	2324	2				IS,C,DC
			CULG				2046	2324	2				RS,DP
	2046	2324	CULG				2046	2136	2				IIIS
			CULG	2136	2213	1							CONT
			CULG				2136	2220	3	2136	2233	3	IIIS
			CULG				2220	2324	2				IIIS
			CULG	2222.5	2223.5	3	2222.5	2223.5	3	2222.5	2223.5	3	IIIG
	2224	2400	MANI										
			CULG	2227.5	2230	2	2228.5	2230	3	2228.5	2230	3	IIIGG

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
18			CULG	2232	2233	2	2232.5		3	2232.5	2233	2	IIIG
			CULG	2239.5		2	2239.5		2				IIIB
			CULG							2309	2313	1	IIIG
	2324	2400	CULG				2324	2400	1				N,RS,DP
			CULG				2324	2400	1				IS,C
			CULG				2324	2400	2				IIIS
			CULG				2329	2332	3	2330	2332	2	IIIGG
			CULG							2334	2400	1	IIIN
19			CULG				0000	0646	2				IS,C
			CULG				0000	0646	2				IIIN
			CULG				0000	0646	1				IIIS
	0000	0646	CULG				0000	0646	1				N,RS,DP
	0000	0925	MANI										
			CULG				0056.5		2	0057		1	IIIB
	0658	0926	WEIS				0701	1607	2				IIIS
	0933	1613	WEIS				0701	1549	2				IS
	0724	1634	DURN	0725.3	0725.3	3	0725.3	0725.3	3				III
			DURN	0812	1540	1	0844	1540	1				I
			DURN	0844.6	0844.6	3	0844.6	0844.6	3				III
			DURN	0944.5	0944.7	3	0944.5	0944.6	3				IIIG
			DURN	1149.8	1149.8	3							III
			DURN	1236.1	1237.4	1	1236.1	1237.4	3				IIIGG
			WEIS				1236.3	1239.2	3				IIIGG
	1139	2216	SGMR				1236.8	1238.0	2				IIIG
			DURN	1238.4	1239.1	3	1238.4	1239.1	3				IIIGG
			SGMR				1521.6	1533.0	3				IIIG
			WEIS				1525.2	1536.0	3				IIIGG
			SGMR				1530.0	1638.3	2				CONT
			DURN	1532.8	1535.1	1							DCIM
	2048	2400	CULG				2048	2400	1				IIIS
			CULG				2048	2400	1				IS,C
			CULG				2048	2400	2				IIIN
	2222	2400	MANI										
			CULG	2344.5	2345.5	2	2344	2346	3	2344	2346.5	3	IIIG
			CULG	2350		2	2350		2				IIIB
20			CULG				0000	0746	1				IS,C
	0000	0746	CULG				0000	0746	1				IIIS
			CULG				0019	0204	2				IIIN
			CULG	0112	0113	1	0112	0113.5	2	0112	0113	1	IIIG
			CULG				0155.5	0159.5	2	0155.5	0159	2	IIIGG
			CULG				0252	0253	3	0252	0253	2	IIIG
			CULG				0455.5	0501	3	0455.5	0501	2	IIIG
			CULG				0516		2				IIIB
	0000	0928	MANI							0524.6	0527.2	1	IIIG
			CULG				0524	0532.5	3	0524.5	0532	2	IIIGG
			CULG				0552.5	0558.5	2				IIIGG
			MANI							0700.0	0700.3	1	III
	0656	1616	WEIS				0701	1607	1				IN
			WEIS				0711	1538	2				IIIN
			WEIS				0715.6	0717.7	2				IIIGG
			CULG				0716	0718	3				IIIGG
			WEIS				0730.4	0731.0	3				IIIG
	0650	1408	DURN				0730.4	0730.8	3				IIIG,RS
			DURN	0746.7	0746.8	1							IIIG
			WEIS				0759.8	0801.0	3				IIIG
			WEIS				0850.9	0851.3	3				IIIG
			DURN				0850	1408 D	1				I,DC
			MANI							0851.0	0851.5	1	III
			WEIS				0930.8	0931.5	2				IIIG
			WEIS				0934.3	0947.0	2				II
			DURN				0943.2	0943.4	3				IIIG
			WEIS				1012.9	1016.5	3				IIIG
			WEIS				1053.3	1055.0	3				IIIGG
			DURN	1054.0	1054.3	3	1054.0	1054.3	3				IIIG
	1044	1514	DWIN	1054.0	1054.3	2							IIIG
			DWIN	1145.5	1146.0	2							IIIG
			DURN	1145.5	1147.0	3	1145.5	1146.0	3				IIIGG
			WEIS				1145.6	1147.3	3				IIIGG,V

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20			WEIS				1229.2	1232.0	3				IIIG
			SGMR				1230.4	1231.8	3				V
	1138	2217	SGMR				1245.8	1246.8	2				V
			DURN	1316.9	1317.3	1	1317.2	1317.3	2				IIIG
			WEIS				1317.3	1317.7	3				IIIG
			SGMR				1317.5	1317.8	1				III
			DURN	1320.8	1320.9	3							IIIG
			DURN	1326.9	1327.1	2							IIIG
	1427	1640	DURN				1427 E	1640 D	1				I,DC
			DWIN	1452.4	1452.5	1							IIIG
			SGMR				1647.0	1648.5	3				V
			SGMR				1755.5	1756.0	1				V
			SGMR				1848.9	1850.1	3				V
			SGMR				1850.0	2217.00	1				CONT
			SGMR				2006.6	2007.8	3				V
	2122	2400	CULG				2122	2150	1				IS
			CULG				2122	2400					IIIS,W
			CULG	2129.5	2131.5	2	2129	2132	3	2129.5	2132.5	2	IIIGG,V
			CULG	2129.5	2400	1							FDRIFT,N
			SGMR				2129.8	2131.8	3				V
			CULG	2135.5	2136	2	2135.5	2136	2				IIIG
			CULG				2137	2400	1				I IIN
			CULG				2150	2400	1				IS,C,DC
			CULG	2158.5	2159	1							IIIG
			CULG				2159.5	2201.5	2	2201.5	2202.5	1	IIIG
			CULG				2216.5	2218	3	2216.5	2218	2	IIIG
			CULG	2216.5	2220	1	2215	2203.5	1				I IIGG
			CULG							2220	2240	1	S.W.F.
			CULG				2231.5	2239	1				IIP OSSIBLE
			CULG				2232	2400	2				IS,C,DC
			CULG				2259		2	2259		2	IIIB
			CULG				2329.5	2330	1	2329.5	2330.5	2	IIIG
			CULG				2340.5		2				IIIB
			CULG	2342	2342.5	2	2342	2343	3	2342	2344	1	IIIG
			CULG	2345.5	2352.5	2							IIIGG
	2226	2400	MANI							2348.2	2349.1	1	III
			CULG	2348.5	2349.5	1							IIIG
			CULG				2348	2349.5	3	2348	2349	3	IIIG,V
			CULG	2351	2352	1	2351	2352	3	2351	2352	3	IIIG
			CULG				2353.5	2354	3	2353.5	2354	2	IIIG
			MANI							2358.6	2358.7	1	III
21			CULG				0000	0310	2				CONT
			CULG				0000	0310	2				IS,C,DC
			CULG	0000	0300								IN,W
	0000	0756	CULG				0000	0254	1				IIIS
			CULG				0047.5		2				IIIG
			CULG				0132	0254	1				IIIN
			CULG	0147	0148	1							IIIG
			CULG				0156.5		1	0156.5		1	IIIB
			CULG				0254	0313	2				IIIS
			CULG	0300	0756	1							IS
			CULG				0310	0756	1				IS,C,DC
			CULG				0310	0756	1				CONT
			CULG				0313	0738					IIIS,W
			CULG				0323	0738	1				IIIN
			CULG				0401.5		2				IIIB
			CULG				0513.5		2				IIIB
			CULG				0523.5		2				I IIB
			CULG				0528.5		2	0528.5		1	IIIB
	0000	0922	MANI							0535.9	0536.2	1	III
			CULG				0535	0536	3	0535.5	0536	3	IIIG
	0654	1043	WEIS				0658	1613	2				IN
			CULG				0701		2				I IIB
	1054	1617	WEIS				0718	1604	1				IIIN
			WEIS				0729.3	0729.5	2				IIIG
			CULG				0738	0756	1				I IIS
			CULG				0739	0739.5	2				IIIB
			CULG				0746.5	0747.5	2				IIIG
			WEIS				0927.4	0934.2	3				IIIGG,U

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21			WEIS				0935.3	0938.5	3				IIIG
	0955	1333	DWIN	0959.9	1001.0	1							IVF
			DWIN	1026.8		1							IIIB
			WEIS				1105.4	1110.8	3				IIIGG
			DWIN	1106.9	1108.0	2							IIIG,MR
			WEIS				1123.9	1124.3	2				IIIG
			WEIS				1204.4	1209.8	3				IIIG
	1136	2218	SGMR				1208.9	1209.5	3				V
			WEIS				1212.5	1212.8	2				IIIG
			DWIN	1216.8		2							I IIB
	1408	1522	DWIN	1422.2	1422.3	2							IIIG
			SGMR				1459.1	1459.8	2				V
			WEIS				1459.4	1459.7	3				IIIB
	1524	1648	DURN				1524 E	1648 D	1				I
			WEIS				1525.9	1527.1	3				IIIG
			SGMR				1526.0	1527.3	3				V
			DURN	1526.9	1527.3	1	1526.9	1527.3	3				IIIGG
			WEIS				1556.7	1557.8	3				IIIG,RS
			SGMR				1557.0	1557.8	2				V
			DURN	1557.6	1602.3	3	1557.8	1558.7	3				IIIGG
			SGMR				1831.9	1832.0	2				III
			SGMR				2038.0	2045.9	2				IIIG
	2046	2400	CULG	2046	2047	3	2046	2047	3	2046	2047	3	IIIGG
			CULG				2046	2400					IIIS,W
			CULG	2046	2251	2	2046	2400	1				IS
			CULG				2104.5	2105.5	1				IIIG
			CULG				2113	2115	1				IIIG
			CULG				2129		1				IIIB
			CULG	2216		1	2216	2216.5	1	2216	2217	2	IIIG
	2220	2400	MANI										
			CULG	2229		1	2229		1				IIIB
			CULG	2237	2237.5	1	2237	2237.5	1				IIIG
			CULG				2241		1				IIIB
			CULG	2251	2400	1							IS
			CULG	2254	2254.5	2	2254	2254.5	2				IIIG
			CULG	2255	2255.5	1	2255	2255.5	1				IIIG
			CULG	2330.5	2331	1							IIIG
			CULG	2333	2333.5	2	2333	2333.5	2				IIIG
			CULG	2336	2337.5	2	2336	2336.5	2				IIIG
22			CULG	0000.5	0001	2	0000.5	0001	1				IIIG
			CULG				0000	0508					IIIN,W
	0000	0508	CULG	0000	0321	1	0000	0102	1				IS
	0000	0927	MANI										
			CULG	0004.5		1							IIIB
			CULG	0006.5	0007	2	0006.5	0007	3				IIIG
			CULG	0040	0040.5								IIIG,W
			CULG				0102	0346					IS,W
			CULG	0141.5	0142	1							IIIG
			CULG	0321	0425								IS,W
			CULG	0425	0444	1							IS
			CULG	0444	0508								IS,W
			CULG				0617	0726					IIIN,W
	0617	0753	CULG				0617	0622					IIIGG,W
			CULG	0617	0740								IS,W
			CULG				0617	0740	1				IS
	0643	1424	DURN				0643 D	1424 E	1				I,DC
			DURN	0657.8	0658.1	3	0657.8	0658.1	1				IIIGG
			CULG	0658	0658.5	2							IIIG
	0653	1619	WEIS				0720.0	1517	2				I?
			WEIS				0720	1542	2				IIIN
			CULG				0726	0753	1				IIIS
			CULG	0740	0753	1	0740	0753	2				IS
	0945	1517	DWIN	1011.3	1012.0	1							IIIG
			DWIN	1223.5	1223.9	2							IIIG
	1135	2219	SGMR				1236.8	2219.0D	1				CONT
			DURN	1253.6	1254.7	2							IIIG,U
			DWIN	1449.9	1450.0	2							IIIG
			WEIS				1457.7	1458.0	2				IIIG
	2046	2400	CULG	2104.5	2105	1							IIIG

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22	2209	2400	MANI										
			CULG				2210.5	2212.5	3	2210.5	2211.5	3	IIIG
			CULG				2215.5	2216.5	1	2216	2216.5	1	IIIG
			CULG				2343.5						IIIB,W
			CULG				2353						IIIB,W
23	0000	0745	CULG				0006	0745					IIIN,W
			CULG	0040.5	0041.5								IIIG,W
			CULG	0041.5		2	0041.5		2				IIIB
			CULG				0043.5	0044	1				IIIB,U
			CULG	0101.5		2	0101.5		1	0101.5	0102	2	IIIB
			CULG	0106			0106	0108		0107.5			IIIG,W
			CULG	0211.5	0212	1	0210.5	0212	1	0211.5		1	IIIG
			CULG	0216.5		1	0216.5		1				IIIB
			CULG	0229.5	0230	1	0230		1				IIIB
			CULG	0553.5	0554	1							IIIG
			CULG	0643		1							IIIB,RS
	0650	1147	WEIS				0656.9	0658.4	2				IIIG
			CULG	0657		1	0657	0657.5	2	0657		1	IIIB,V
			CULG	0658	0658.5	1	0658	0658.5	2	0658	0658.5	2	IIIB,V,U
			WEIS				0700.3	0701.6	2				IIIG
	0000	0925	MANI							0700.4	0700.6	1	III
			CULG	0700.5	0701	1	0700.5	0702	2	0700.5		2	IIIG,V
			WEIS				0702.7	0703.6	2				IIIG
			CULG	0703.5	0704	1							IIIG
			CULG	0703		1							IIIB
			WEIS				0705.2	0707.3	3				IIIG,RS
			CULG				0705.5		2				IIIB
			CULG	0706.5	0707.5	2	0706.5	0708	2	0707	0707.5	2	IIIG,V
			MANI							0706.8	0707.0	1	III
			CULG	0708.5	0709								IIIG,W
			WEIS				0709.4	0709.7	3				IIIG
			CULG	0709.5	0710	1	0709.5	0710	2				IIIB,V
	1023	1516	DWIN										
			WEIS				1040.0	1540.0	2				IIIN
			WEIS				1142.5	1142.9	3				IIIG
	0728	1650	DURN				1200	1600	1				I,DC
	1133	2221	SGMR				1308.5	1309.1	2				V
			SGMR				1310.9	1311.5	2				V
			SGMR				1312.6	1316.0	2				V
	1326	1621	WEIS				1425.9	1427.3	3				IIIG
			SGMR				1426.0	1428.0	3				V
			DURN	1610.4	1610.6	2	1610.4	1610.6	2				IIIG
	2046	2133	CULG				2046	2133	1				IS
			CULG				2055		1				IIIB
	2220	2400	MANI										
	2305	2400	CULG	2348	2400								IS,W
24	0000	0923	MANI										
	0117	0745	CULG				0256	0314	1				IIIS
			CULG	0348	0549	1							IS
			CULG				0504	0729					IIIN,W
			CULG	0549	0633								IS,W
			CULG				0623		1				IIIB
			CULG				0626.5		2				IIIB
	0648	1622	WEIS				0754.4	0756.9	2				IIIG
			WEIS				1032.6	1033.3	2				IIIG
	0641	1642	DURN				1032.6	1033.4	3				IIIGG
	1132	2222	SGMR										
			WEIS				1242.4	1242.5	1				IIIU
	2045	2400	CULG				2057						IIIB,W
			CULG	2114	2117	2	2115	2117	2	2115.5	2116	1	IIIG
			CULG	2124	2201								IS,W
	2220	2400	MANI										
			CULG	2324	2340								IS,W
			CULG	2340	2400	1	2337	2400	1				IS
			CULG				2344	2400					IIIS,W
			CULG	2346.5	2347	1	2347	2347.5	2	2347	2347.5	2	IIIG
25			CULG				0000	0430	2				IS,C,DC

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

FEBRUARY 1979

FEB 1979	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
25	0000	0745	CULG	0000	0117	1							IS
			CULG				0000	0745					IIIN,W
	0000	0923	MANI										
			CULG				0022.5	0023	1				IIIB
			CULG	0117	0209								IS,W
			CULG				0250.5	0251	2	0250.5	0251	2	IIIB
			CULG				0343	0344	1				IIIG
			CULG				0427.5	0428	1	0427.5	0428	1	IIIG
			CULG				0452		1	0452	0452.5	1	IIIB
			CULG				0454		1	0454	0455	1	IIIG
			CULG				0507.5	0508.5	3	0508	0508.5	3	IIIB,V
			CULG				0510		2	0510	0510.5	2	IIIB,V
			CULG				0521		1				IIIB
	0638	1604	DURN				0638 E	0740	1				I
			CULG	0641	0642	1	0641	0649	2	0641	0643	2	IIIGG
			CULG				0648	0652	1				UNCLF
			WEIS				0650.3	0653.5	2				IIIG
			CULG				0654.5	0724	2				II
	0646	1425	WEIS				0654	0710	3				IIH ARM,DNI
			CULG				0713	0727	1				IV
			WEIS				0720.9	0723.2	2				IIIG
			CULG				0721	0721.5	2	0721	0721.5	1	IIIG
			CULG				0722.5	0723	2	0722.5	0723	1	IIIG
			WEIS				0731.0	0732.9	2				IIIG
			CULG				0731	0732.5	1				IIIG
			CULG	0735	0736	1							IIIG
			WEIS				0824.4	0824.6	2				IIIB
			WEIS				0959.6	1000.5	1				IIIG
			WEIS				1044.9	1045.4	1				IIIG
			WEIS				1050.1	1050.5	1				IIIG
			WEIS				1115.7	1117.6	2				IIIG
			WEIS				1322.7	1324.3	3				IIIG,RS
			DURN				1322.7	1324.0	3				IIIGG
	1130	2223	SGMR				1322.8	1323.1	1				V
			SGMR				1323.5	1324.1	1				V
			WEIS				1329.0	1329.3	1				IIIG
			WEIS				1418.3	1418.7	1				IIIG
			DURN				1425.5	1425.5	3				IIIG
	1434	1624	WEIS				1508.4	1511.7	3				IIIGG,RS
			SGMR				1509.0	1510.3	2				V
			DURN	1509.9	1510.1	3	1508.3	1511.7	3				IIIGG
			DURN				1602	1604 D	1				I,DC
	1641	1650	DURN										
	2045	2400	CULG				2219	2221	2				IIIG
	2221	2400	MANI										
			CULG				2245.5						IIIB,W
			CULG				2249	2250.5	1				IIIG
			CULG	2331									IIIB,W
26	0000	0745	CULG				0016.5	0017					IIIG,W
			CULG				0152	0745					IIIN,W
			CULG				0217.5	0218	1				IIIG
			CULG				0227	0228	2				IIIG
			CULG	0246.5	0247								IIIG,W
			CULG	0252.5	0253.5		0253.5	0254					IIIG,W
			CULG							0308.5	0315		S.W.F.,W
			CULG				0308	0310.5	3	0308.5	0310.5	2	IIIGG
	0000	0924	MANI							0309.0	0309.3	1	III
			CULG	0429									IIIB,W
			CULG	0431.5									IIIB,W
			CULG				0432.5	0433	1				IIIG
			CULG				0454		1				IIIB,U
			CULG	0459.5	0500	1							IIIG
			CULG				0500						IIIB,W
			CULG	0517.5	0518.5	2	0517.5	0518.5	2	0517.5	0518	1	IIIG
	0635	1650	DURN										
			CULG	0654.5	0710								IIIG,N,W
	0645	1626	WEIS				0726.3	0727.3	2				IIIG,U
			CULG				0726	0727.5	1				IIIG
			WEIS				0810.3	0810.4	2				IIIG,U

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

FEBRUARY 1979

FEB 1979	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
26			WEIS				1116.0	1118.1	2				IIIGG
			WEIS				1125.3	1125.6	2				IIIB,U
	1155	2000	SGMR										
	2045	2400	CULG				2058.5	2101.5	2	2100	2102	1	IIIG,V
			CULG				2129	2130	2				I IIG,U
			CULG				2204	2205	2				IIIG
	2211	2400	MANI										
27	0000	0920	MANI										
	0000	0745	CULG				0039.5						IIIB,W
			CULG	0043		1	0042.5	0043	1				I IIG
			CULG				0418.5						IIIB,W
			CULG	0418.5	0419	1							IIIG
			CULG	0422			0422						IIIB,W
			CULG				0555	0556.5	1				IIIG
	0635	1650	DURN										
	0642	1516	WEIS				1122.5	1122.9	1				IIIG
	1128	2226	SGMR										
	1520	1627	WEIS										
	2045	2400	CULG				2046.5		1				IIIB
			CULG	2051	2123	1							IS
	2220	2400	MANI										
			CULG	2243	2318								IN,W
			CULG				2326.5		1				I IIB
28	0000	0934	MANI										
	0000	0745	CULG				0109.5						IIIB,W
			CULG	0110.5	0111								IIIG,W
			CULG	0147	0148	1							I
			CULG	0244	0745								IS,W
			CULG				0342.5	0343					IIIG,W
			CULG				0518.5	0519	1				I IIG
			CULG				0524	0525	1				IIIG,U
			CULG				0615.5	0616	2				IIIB
	0635	1650	DURN				0635 E	0800	1				I
			CULG				0731		1				IIIB
	1125	2227	SGMR										
			DURN	1453.3	1453.8	2	1453.5	1453.7	3				IIIG
	0641	1629	WEIS				1453.4	1453.7	1				IIIG,RS
	2217	2400	MANI										
	2045	2400	CULG				2239.5			2240			IIIB,W
			CULG	2247		1							IIIB

The symbols used in connection with the spectral type in describing the important bursts are as follows:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of bursts
C = Underlying continuum (particularly with type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III

RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

COSMIC RAY INDICES

(Neutron Monitors)

FEBRUARY 1979

Feb. 1979	THULE	ALERT	DEEP RIVER	CALGARY	KIEL	CLIMAX	TOKYO	KULA	HUANCAYO
	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr
1		7213.5	6784.9		6128.7	4075.9	3614.7		
2		7190.3	6764.5		6132.9	4079.0	3620.0		
3		7218.2	6786.3		6128.5	4076.6	3623.2		
4		7174.0	6730.4		6084.7	4043.0	3608.7		
5		7198.1	6743.9		6092.9	4048.0	3619.3		
6		7246.3	6790.7(21)		6128.2	4088.0	3638.8		
7		7263.9	6790.5(20)		6169.5	4091.0	3645.0		
8		7307.6	6827.7(19)		6174.9	4105.7	3651.7		
9		7347.4	6883.4(22)		6210.3	4132.9	3656.7		
10		7374.3	6934.0		6246.5	4157.4	3659.8		
11		7275.3	6843.4		6167.0	4112.5	3645.1		
12		7216.3	6790.9		6147.8	4095.9	3645.2		
13		7222.1	6798.0		6148.2	4051.3	3625.9		
14		7252.3	6835.0		6165.5	4098.0	3631.5		
15		7247.8	6780.0		6125.8	4082.6	3638.3		
16		7275.6	6800.6		6129.8	4085.4	3631.8		
17		7270.4	6804.6		6113.3	4080.9	3619.8		
18		7037.8	6640.8		6008.6	3974.4	3558.8		
19		6918.6	6552.2		5845.0	3920.9	3534.0		
20		6910.9	6461.1(23)		5852.7	3867.7	3517.9		
21		6850.4	6451.2		5821.9	3884.6	3537.0		
22		6924.3	6461.4		5876.3	3912.6	3558.3(19)		
23		6876.6	6453.4		5841.1	3873.2	3527.3		
24		6911.5	6479.5		5884.3	3918.3	3562.2		
25		7001.8	6596.5		5933.8	3952.3	3575.5		
26		7075.1	6627.9		6006.3	4001.0	3596.8		
27		7144.9	6703.9		6073.0	4071.7	3623.3		
28		7215.2	6735.7		6137.5	4085.0	3632.7		
MEAN		7148.5	6709.0		6063.4	4034.7	3607.5		

Data not available at time of publication.

Data not available at time of publication.

Data not available at time of publication.

Data not available at time of publication.

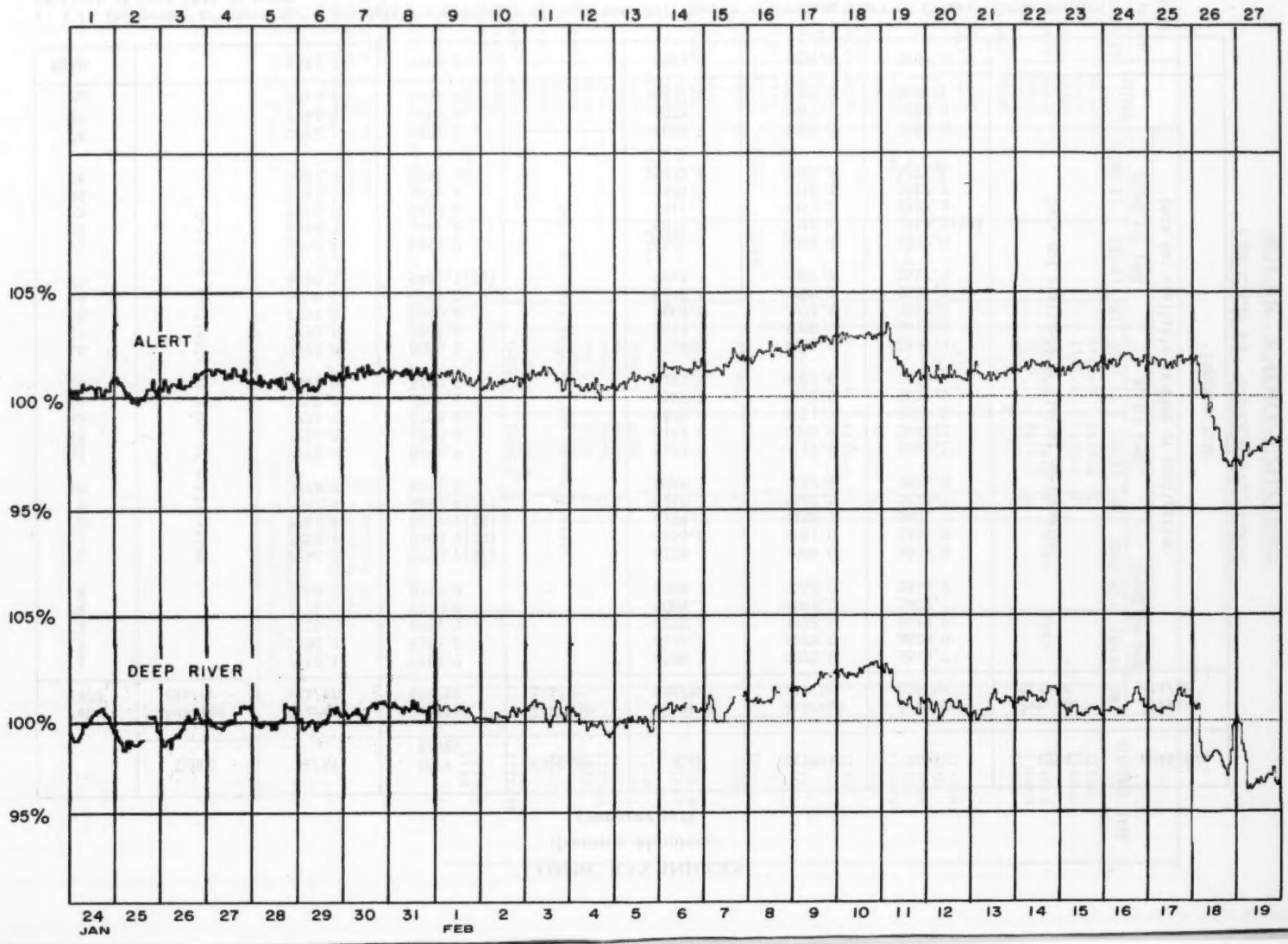
( ) is the number of hours for which data are available if less than 24. Number of Section Hours at Climax if sum of both sections is less than 40 hours.

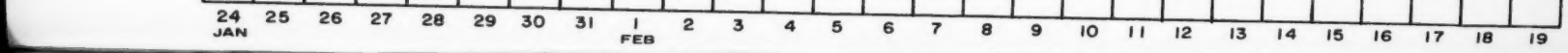
Scaling Factors: 100 for Thule, Alert, Calgary, Sulphur Mountain, Kiel, Climax and Kula; 300 for Deep River; 256 for Tokyo.

NOTE: SULPHUR MOUNTAIN STATION CLOSED AUGUST 1978.

COSMIC RAY INDICES
(Neutron Monitors)

Bartel's Rotation 1989 (January-February 1979)

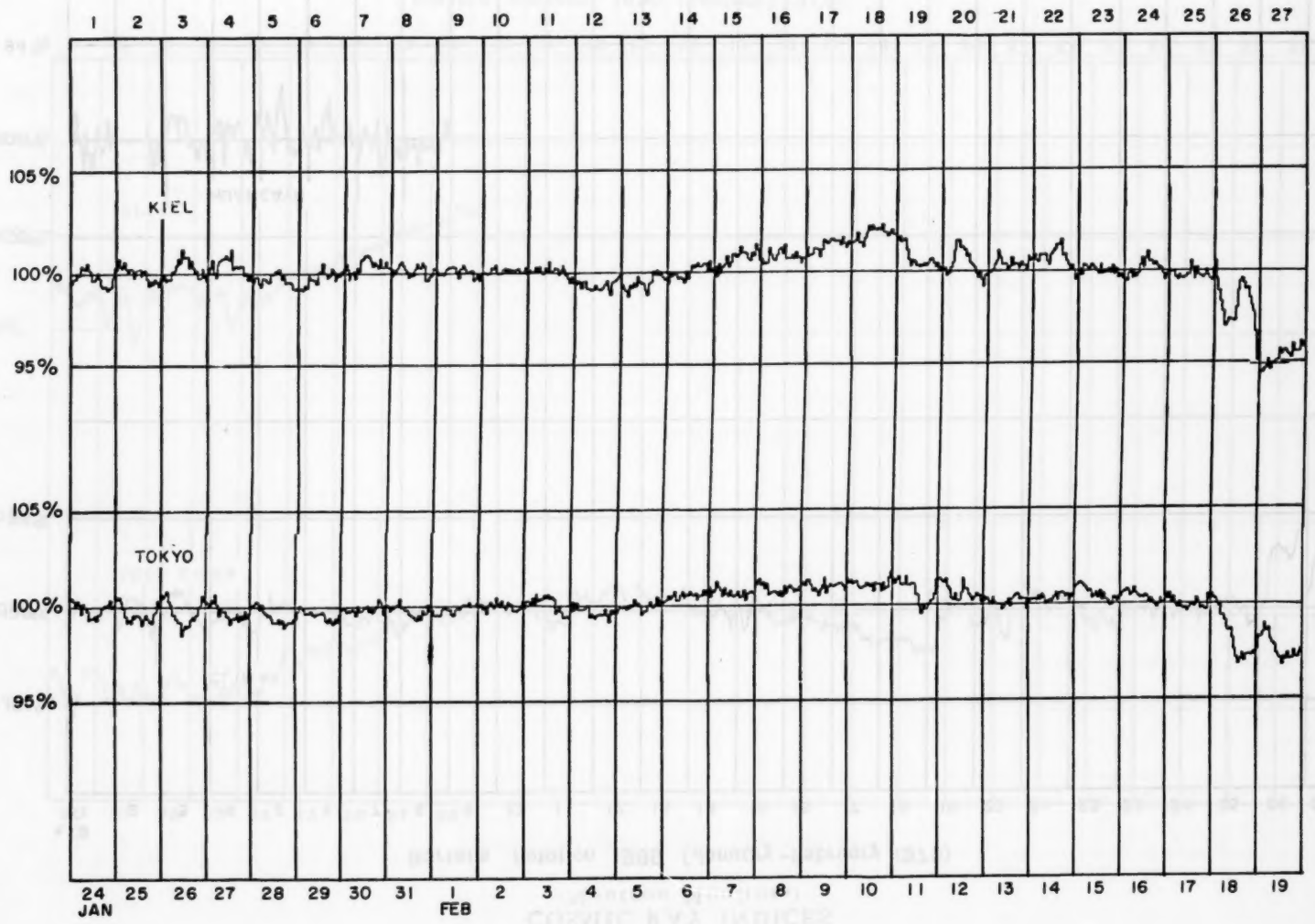




COSMIC RAY INDICES

(Neutron Monitors)

Bartel's Rotation 1989 (January-February 1979)



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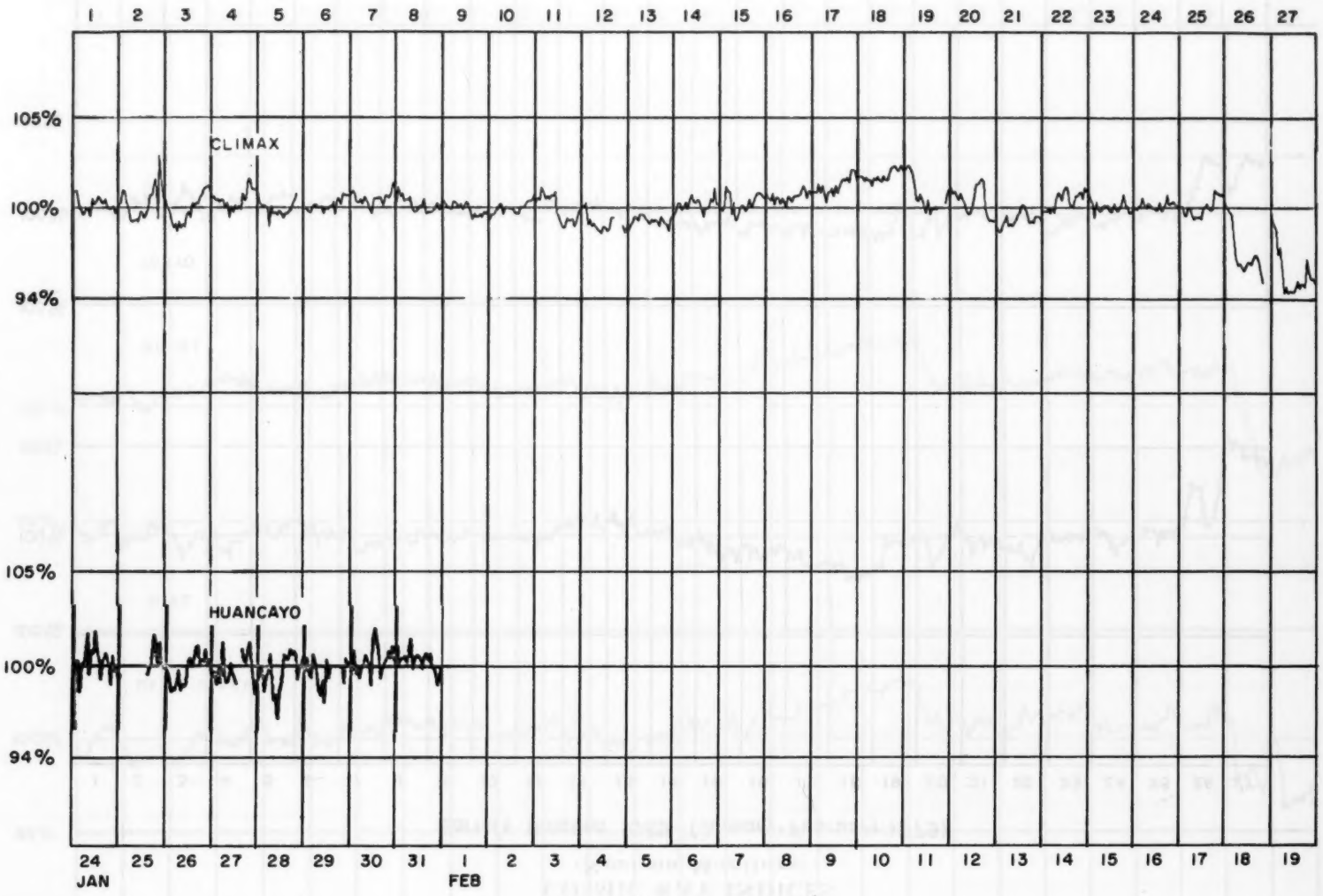
Feb 79

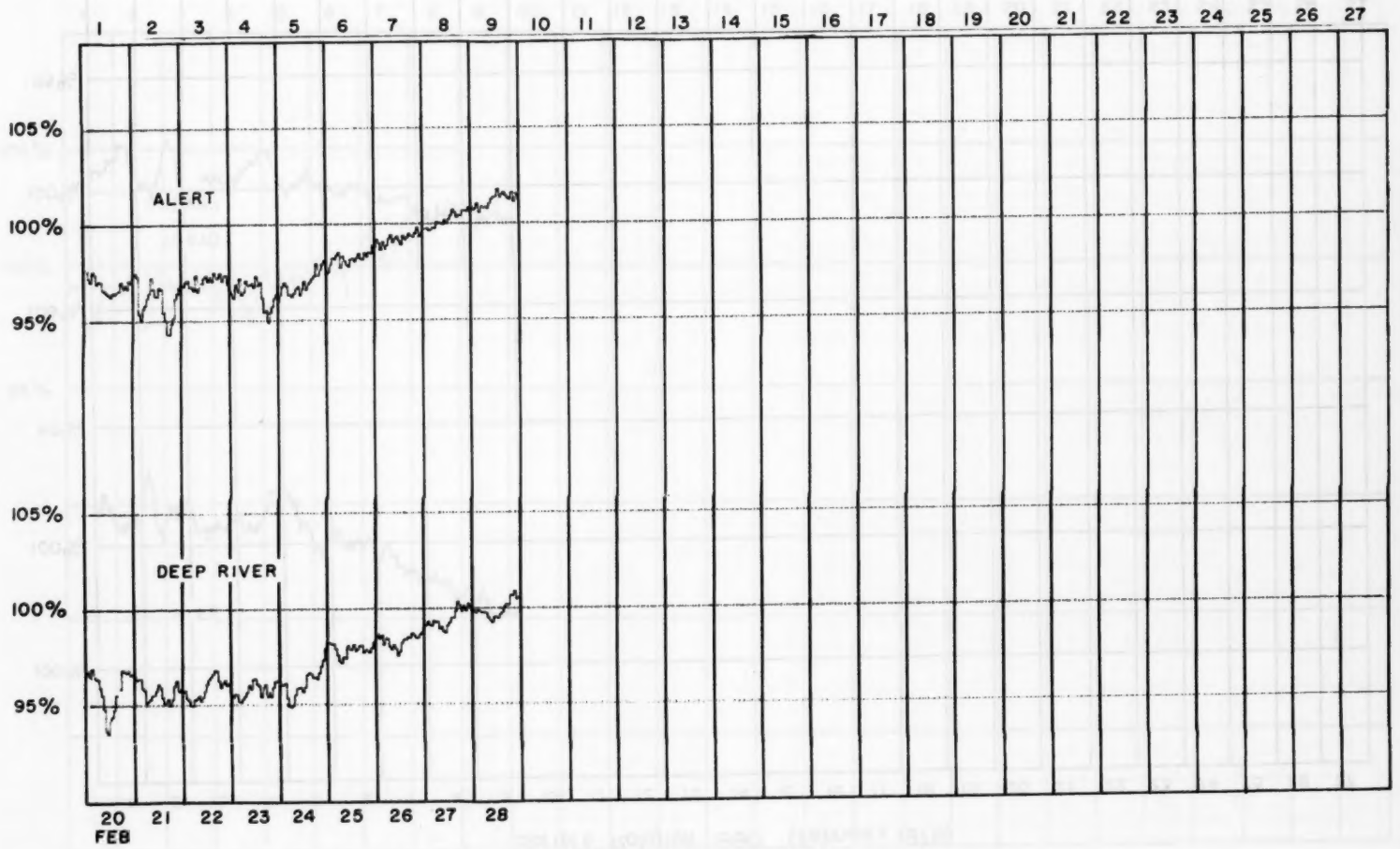
COSMIC RAY INDICES
(Neutron Monitors)

Bartel's Rotation 1989 (January - February 1979)



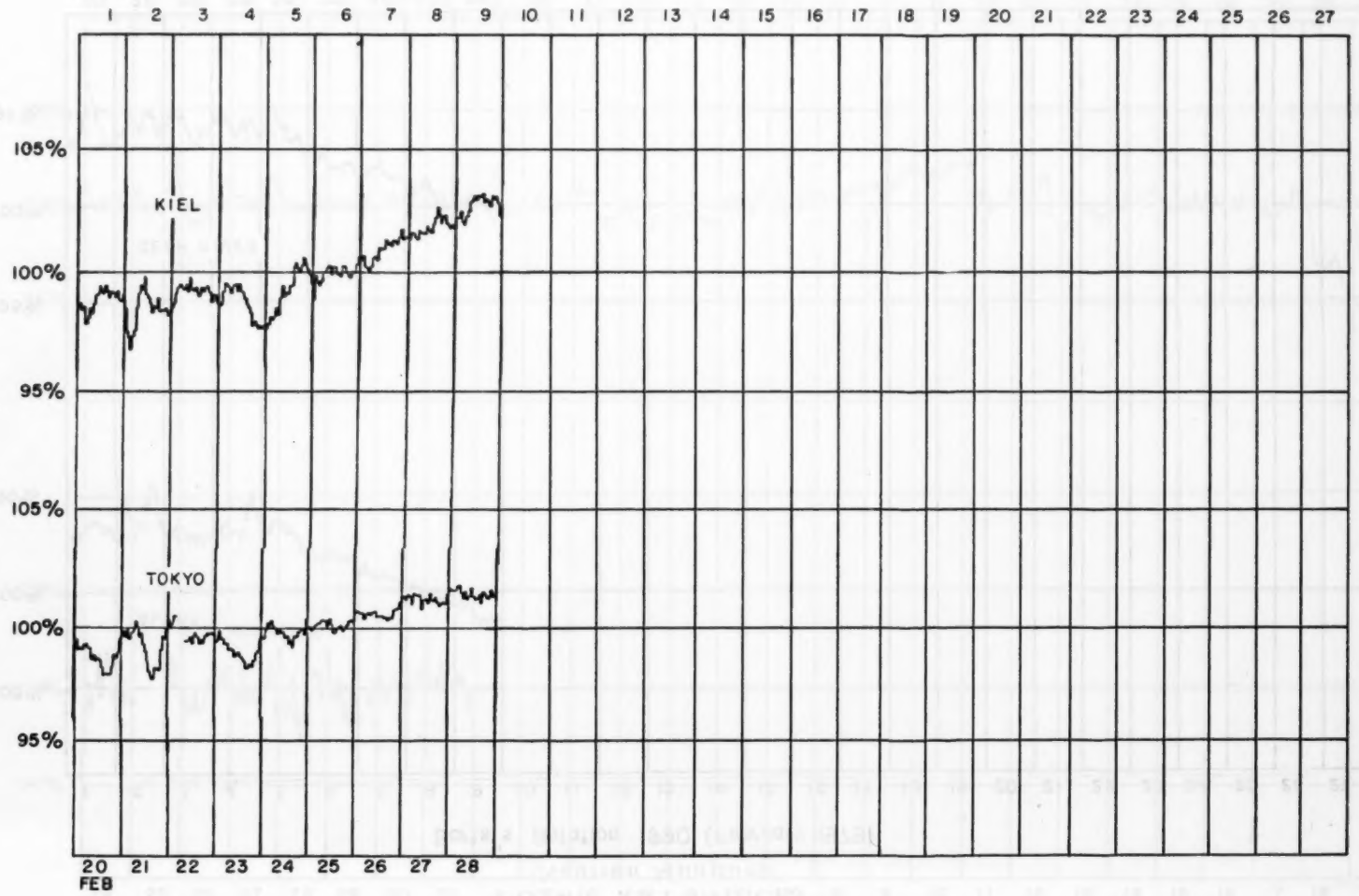
COSMIC RAY INDICES
(Neutron Monitors)

Bartel's Rotation 1990 (February 1979)



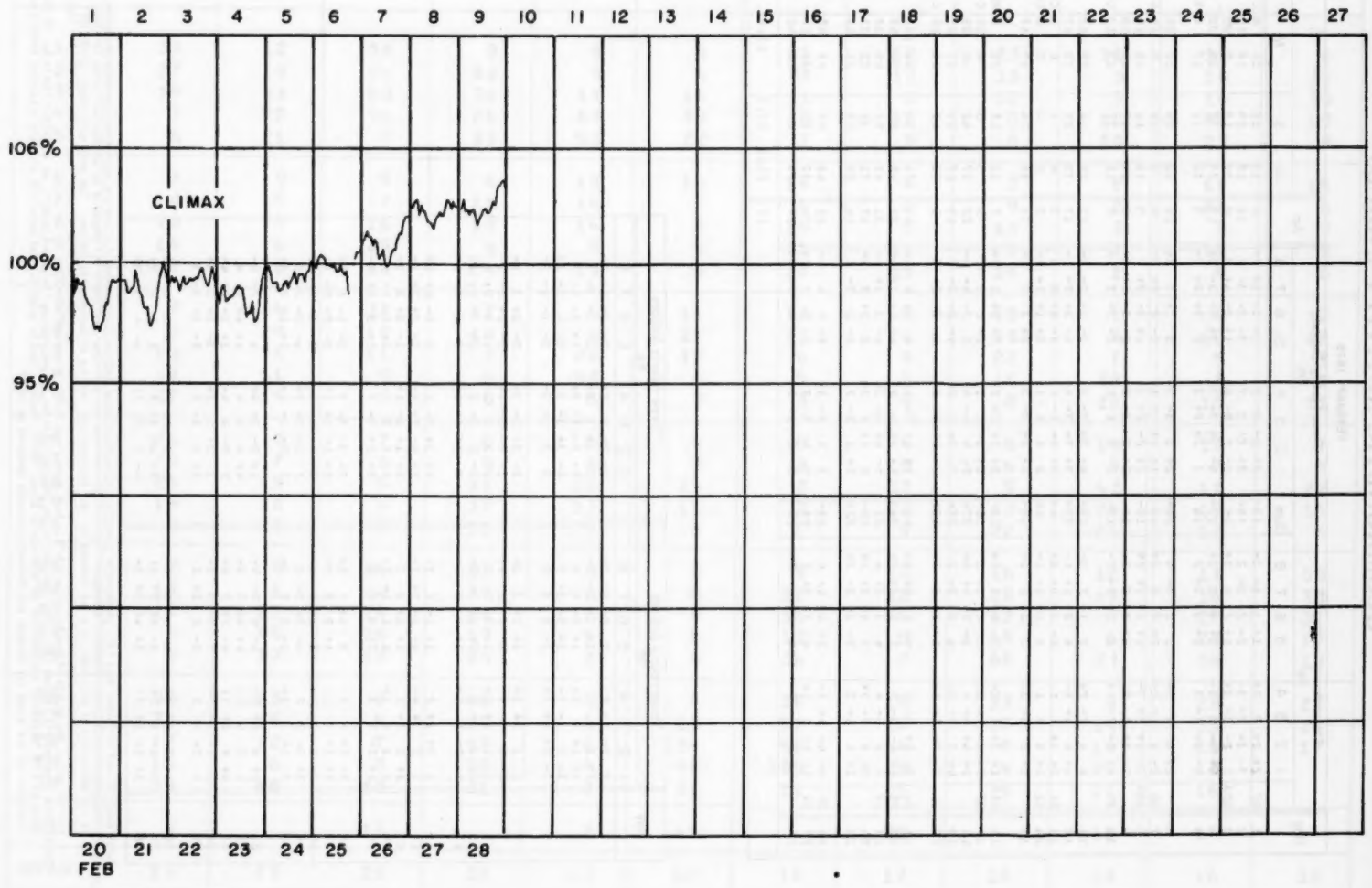
COSMIC RAY INDICES
(Neutron Monitors)

Bartel's Rotation 1990 (February 1979)



COSMIC RAY INDICES
(Neutron Monitors)

Bartel's Rotation 1990 (February 1979)



GEOMAGNETIC ACTIVITY INDICES

FEBRUARY 1979

Day	Three-Hourly Indices Kp									Three-Hourly Indices Km								Ap	aa *					Cp
		1	2	3	4	5	6	7	8	Sum	1	2	3	4	5	6	7	8		N	S	M		
1	Q7	2+	2+	2	2+	1+	1-	1-	2-	13+	2+	2-	2-	2	1+	1-	0+	2-	6	13	10	16	8	C	0.3
2		3-	3-	3-	3-	2-	2-	2+	2	18+	2+	2+	2	2+	2-	2-	3-	2	10	18	15	18	15		0.5
3	Q0A	2	2-	0+	0+	1+	2	4	3+	15	2-	1	0+	0+	1+	2-	4+	3	9	20	13	7	26		0.5
4		4-	4-	3	3+	3+	4+	3	2+	27-	4-	3+	3-	3	3+	4+	3-	2+	19	29	32	29	32		1.0
5		4-	2+	3-	3	2-	0+	0+	2	16	3	2+	2+	3	2	0+	0+	2-	9	12	12	17	7	K	0.5
6		2+	4	3	3-	3	2	3-	4	24-	2+	3	3-	3	3	2+	3	3+	16	22	25	22	25		0.9
7	Q6	2-	1	1-	2-	2-	2	2	2+	13	1+	1+	1+	1+	2-	2	2+	3-	6	8	14	9	14	C	0.3
8	Q9A	3-	2+	2-	3-	1+	2+	2+	2+	18-	2+	2-	2-	3-	1+	3-	2+	2	9	16	16	16	16		0.5
9		3-	2+	2	3-	2+	2+	2-	2	18	2+	2-	2-	2	2+	3-	1+	2+	9	14	17	15	16		0.5
10	Q5	2	2-	2-	1+	2	1+	2-	2-	13+	2-	1	1	1-	2-	2-	2	1+	6	11	12	10	13	C	0.3
11		4	4	2-	2+	2	1-	2	3-	19+	4-	3+	2-	2	2-	1-	2-	3-	12	26	14	28	13		0.7
12		4-	4	4-	4-	4	2+	1+	1-	23+	3+	3+	3+	4-	4-	2+	2-	1-	17	30	20	33	17		0.9
13	Q1	0+	0+	1	1	1-	0+	0+	0+	4+	0+	0+	1-	1	0+	0+	0	0	3	4	4	6	3	CK	0.0
14	Q2	0+	0	0	1	0	1-	1-	2-	4+	0	0	0	1-	0+	1-	1-	2-	2	5	4	3	5	CK	0.0
15		1+	2	4-	3	3	3	2	1-	19-	1+	2-	3-	3	2+	3	2	1+	11	16	19	19	17		0.6
16	Q8A	1+	3+	2	2+	2	1-	1	0+	13	2+	2+	2+	2	2-	0+	1	0+	7	11	13	20	5	KK	0.3
17	Q3	0+	1-	1+	1+	1	2	1+	2-	10-	0+	1-	1	1	1+	2	2	2	5	9	6	4	10	C	0.2
18		2-	4+	4-	4	3-	2+	4+	4+	27+	2+	4	4-	4-	3	3-	4-	4-	22	37	42	45	35		1.1
19		4+	3	3-	2+	4	2+	3-	2	23+	3+	3-	2	2+	4-	3-	3-	2	15	27	20	23	25		0.9
20	Q4	2-	2-	2-	1-	1-	1+	2	3-	12+	2-	1+	1	0+	1-	2-	2+	3-	6	12	12	10	15	C	0.3
21	D1	2+	5+	7-	5	4+	5+	6+	6-	41	1+	4+	5+	4+	4	5+	6	5+	59	76	93	66	102		1.7
22	D2	4+	4-	5-	5	5	5-	3+	3+	34	4+	4-	4	4+	4+	4+	3+	4-	33	48	59	54	53		1.3
23	D3	5	5	5-	4	4	3	3+	4	33	5-	4+	4-	3+	4-	3	3+	4-	31	45	57	65	38		1.3
24		3+	3	3-	3+	3	4-	3+	3+	26-	3	2+	2	3-	3	3+	3	3+	17	31	21	22	31		0.9
25		2+	4	4-	2	3-	2-	3-	3+	22+	2+	3	3-	2	3-	2	3-	3	14	25	19	23	22		0.8
26	D5	4-	4-	3-	3-	3+	4+	4+	4	29-	3	3	3-	3-	3+	4	4	4-	22	40	37	23	55		1.1
27	D4	6-	5-	3	3+	4-	3+	2+	2	28	5-	4-	3-	3-	3	3	2	2+	24	32	22	32	23		1.2
28		4-	2	2-	3	4-	4+	4-	3-	25-	3+	2-	1+	3-	4-	4	3+	3	17	35	23	18	40		0.9
																			15	24.0	23.3	23.8			0.70

Day	Three-Hourly Indices Kn								Three-Hourly Indices Ks							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
1	2	2-	1+	2	1	1-	0+	2-	3-	2-	2	2+	2-	1-	1-	2-
2	2+	2	2	2	2-	2-	3-	2-	3-	2+	2	2+	2-	2-	3-	2
3	1+	1+	0	0+	1+	2-	4	3	2-	1-	1-	0+	1+	2-	5-	3
4	3+	3	3-	3-	3+	5-	3-	2	4-	3+	3-	3	3+	4	3-	2+
5	3-	2+	2+	3+	2+	0	0	2	3	2	2+	3-	2-	1-	1-	2-
6	2	3	2+	3+	3+	2+	3	3+	3-	3+	3-	3-	3-	2+	3	4-
7	1	1-	1-	1	2-	2-	2	2+	1+	2-	2-	1+	2-	2+	3-	3
8	2+	1+	1+	2+	1+	3-	2+	2	2+	2	2	3	1+	3-	2+	2
9	2+	2-	2-	2	2+	2+	2-	2+	3-	2	2-	2	2+	3-	1+	2+
10	1+	1-	1	1-	1+	2-	2	1+	2	1+	1+	1-	2	2-	2+	1+
11	3	3+	1+	2	1+	1-	2	3-	4-	3+	2-	2	2	1-	1+	2+
12	3	3	3+	4-	4-	3-	1+	1-	3+	4-	3+	4-	3+	2+	2-	1-
13	0+	0	1-	1	0+	0+	0	0	0+	1-	1-	1+	1-	0+	0	0+
14	0	0	0	1-	0	1	1-	2-	0+	0	0	1-	0+	1-	1-	1+
15	1-	2-	3	3	2+	3	2	1	2-	2-	3-	3	2+	3	2+	2-
16	2-	2+	2	2	2	0+	1	0+	3-	3-	3-	2	2-	1-	1	0+
17	0+	1-	1	1	1+	2	2	2-	1-	1-	1+	1+	2-	2-	2-	2+
18	2-	4	3+	4-	3	2+	4	4-	3-	4	4	4	3	3-	3+	3+
19	3+	3-	2	2	4-	3-	3-	2	3	2+	2+	2+	4-	3-	3-	2
20	2-	1+	1	0+	1-	2	2	3-	2	2-	1-	1-	1-	1+	2+	3-
21	1+	4	6-	5-	4-	5	6-	5-	1+	5-	5+	4+	4	6-	7-	6-
22	4	3	4	5-	4+	4+	3	4-	4+	4	4	4	4+	4+	4-	4
23	4+	4	3+	3+	4-	3+	3	4-	5	5-	4	4-	3+	3-	3+	4-
24	3	2+	2+	3-	3	3+	3	3+	3	3-	2	2+	3-	3+	3	3+
25	2	3+	3	2	3-	2	2+	3	2+	3	3-	2	3-	2-	3-	3
26	3+	3	3-	3-	4-	4	4	4-	3	3	2+	2+	3+	4-	4+	4-
27	5-	4-	3	2+	3-	3-	2	2+	5-	4-	3-	3	3	3	2	2+
28	3+	1+	1+	3-	3+	4-	3+	3-	4-	2	2-	2+	4-	4	3+	3+

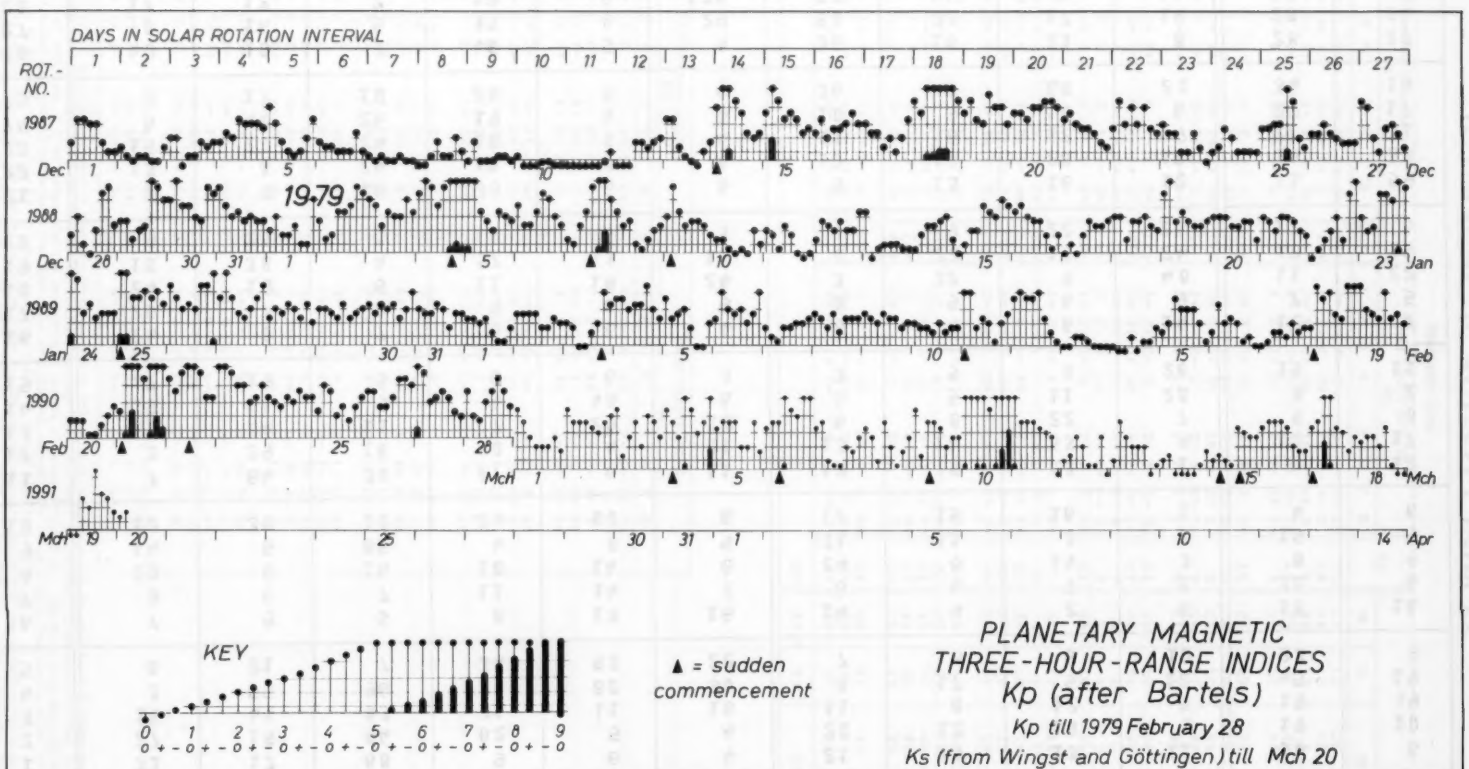
Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2γ) prepared by Geophysikalisches Institut at the University of Göttingen, F.R. of Germany for the International Service of Geomagnetic Indices. Ten most quiet days (Q1-Q0(10)] and five most disturbed days (D1-D5) are ordered from most quiet or disturbed, respectively. A or K means "not really quiet" (A = "Ap>6", K = "Ap ≤6 but one Kp ≥3o or two Kp values ≥3-"). An * means "not really disturbed" (Ap<20).

Geomagnetic three-hourly indices (Kn), (Ks) and (Km) as in IAGA-Bulletin No. 32 and indices (aa), "antipodal", as in IAGA-Bulletin No. 33 prepared by P. N. Mayaud of the Institut de Physique du Globe, Paris, France. Really quiet (C) and quiet but slightly disturbed three-hourly intervals (K) are given for 24-hour and 48-hour intervals centered on 12 UT.

DAILY AVERAGE INDICES Ap

	1978										1979	
DAY	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB
1	33	12	88	9	6	4	21	13	13	11	10	6
2	27	15	94	82	5	4	20	12	10	3	19	10
3	15	41	83	31	11	16	11	8	12	5	19	9
4	3	55	96	26	80	30	8	17	5	12	45	19
5	6	21	7	38	53	22	7	8	6	10	23	9
6	7	9	5	8	13	16	14	4	2	5	18	16
7	9	5	7	11	14	7	6	4	9	2	32	6
8	20	5	16	10	14	6	24	5	14	3	8	9
9	14	6	85	4	8	5	31	11	8	3	15	9
10	12	36	10	24	10	6	12	15	16	1	4	6
11	7	64	30	17	6	11	12	5	10	1	4	12
12	3	29	18	10	4	21	13	14	53	4	10	17
13	12	24	11	7	20	13	6	8	22	7	5	3
14	10	51	9	4	48	6	5	5	11	28	8	2
15	17	19	5	6	6	3	3	5	8	28	15	11
16	24	8	7	6	6	4	6	4	6	14	12	7
17	25	7	8	9	6	9	8	5	6	9	7	5
18	24	19	5	11	18	24	3	32	5	48	11	22
19	15	38	4	17	11	11	2	22	13	24	19	15
20	9	23	8	11	5	3	5	9	22	26	12	6
21	7	9	26	33	6	6	9	13	16	12	11	59
22	13	8	24	15	8	6	12	10	28	19	14	33
23	15	22	24	18	8	4	11	6	12	7	27	31
24	6	48	26	19	6	4	10	5	18	6	23	17
25	3	17	10	24	8	9	36	7	60	21	34	14
26	49	18	7	46	5	4	36	18	33	8	28	22
27	70	16	5	15	4	29	51	23	17	14	23	24
28	17	12	7	12	6	124	50	14	5	14	13	17
29	14	6	8	32	4	40	109	16	4	20	13	
30	16	58	18	31	3	31	11	25	5	27	16	
31	8		12		2	45		20		18	13	
MEAN	16	23	25	20	13	17	18	12	15	13	16	15

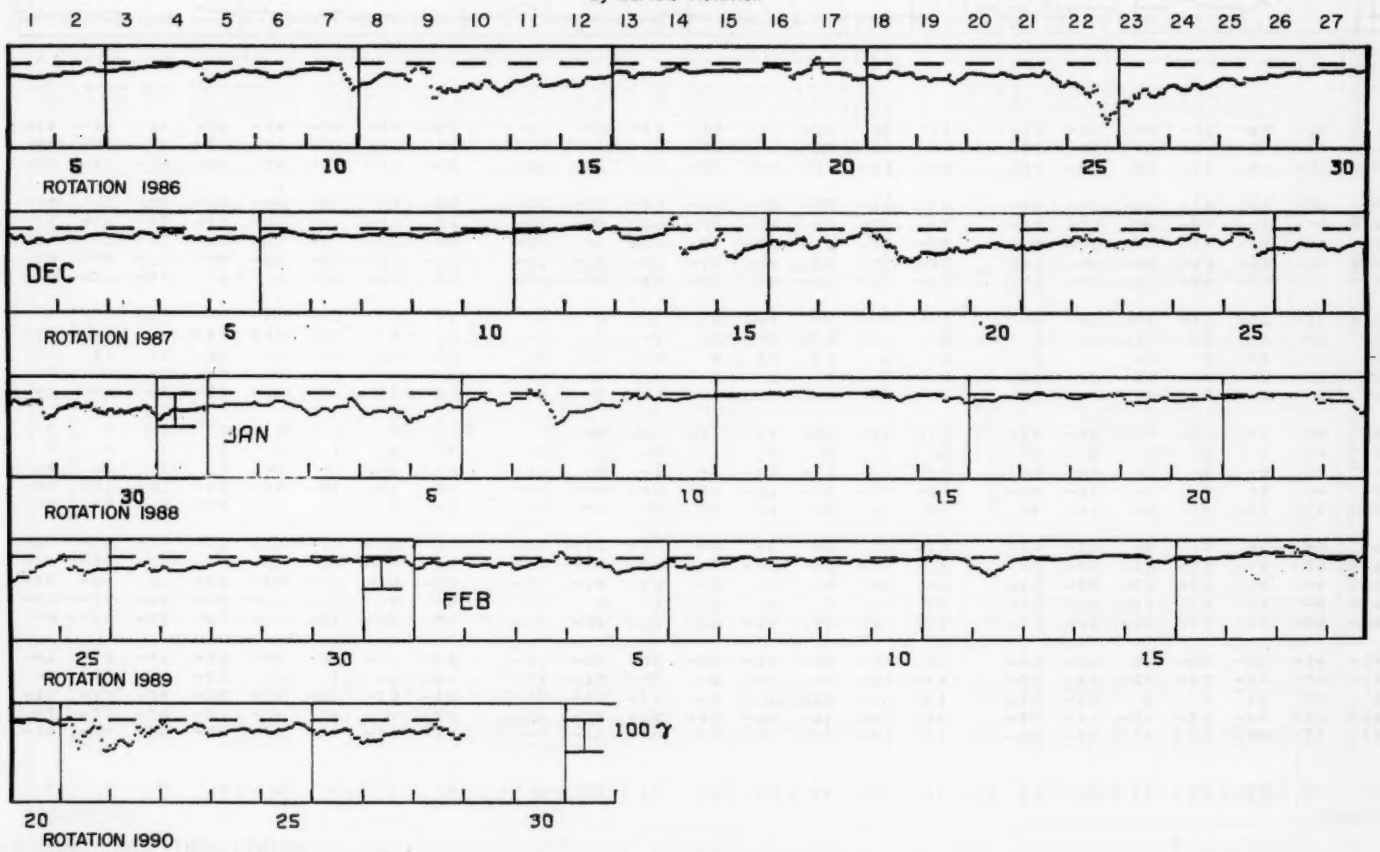
GEOMAGNETIC ACTIVITY INDICES



GEOMAGNETIC ACTIVITY INDICES

Hourly Equatorial Dst

by Bartels Rotation



Note: Both the sensitivity indicator placed on the last day of the month and the zero reference level change from month to month.

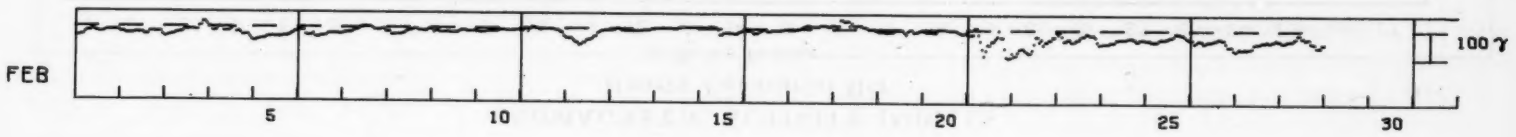
HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

FEBRUARY 1979

NASA/GODDARD SPACE FLIGHT CENTER

(Time-UT) (Units-Gammas)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-36	-34	-29	-29	-21	-15	-14	-13	-9	-15	-19	-20	-22	-20	-19	-14	-12	-12	-13	-12	-12	-12	-13	-20
2	-22	-22	-26	-27	-24	-24	-24	-20	-20	-21	-20	-23	-29	-31	-26	-18	-15	-17	-20	-17	-16	-20	-29	-36
3	-35	-30	-28	-26	-26	-22	-19	-18	-18	-15	-10	-9	-8	-10	-9	-11	-13	-12	2	6	16	15	9	0
4	-3	-13	-17	-12	-4	1	-6	-14	-14	-15	-13	-9	-3	-5	-20	-14	-22	-29	-26	-25	-26	-36	-44	-49
5	-47	-42	-40	-38	-38	-38	-34	-32	-31	-30	-35	-32	-34	-35	-34	-30	-29	-29	-27	-23	-20	-14	-14	-10
6	-8	-10	-13	-27	-31	-31	-29	-22	-33	-37	-33	-29	-30	-28	-27	-21	-19	-21	-20	-19	-20	-25	-25	-19
7	-17	-16	-16	-15	-14	-10	-8	-6	-3	3	4	2	0	1	-1	-5	-10	-10	-11	-8	-4	-8	-15	-13
8	-15	-24	-27	-23	-22	-23	-24	-20	-18	-14	-10	-8	-7	-4	-3	-5	-11	-12	-12	-13	-9	-4	-2	-9
9	-16	-10	-10	-16	-17	-16	-16	-13	-12	-18	-17	-15	-17	-14	-10	-7	-9	-10	-13	-13	-10	-10	-12	-14
10	-14	-16	-15	-13	-12	-10	-10	-10	-10	-12	-10	-8	-5	-5	-6	-10	-11	-10	-8	-6	-6	-5	-8	-11
11	-8	-3	2	-12	-2	6	1	-2	-3	-7	-6	-1	-1	-2	-1	-2	-4	-7	-9	-10	-13	-16	-26	-34
12	-36	-37	-37	-42	-48	-51	-58	-54	-48	-49	-40	-37	-37	-34	-28	-25	-16	-11	-7	-6	-4	-4	-4	-4
13	-4	-3	2	3	-3	-8	-8	-9	-10	-9	-7	-7	-10	-10	-9	-7	-5	-5	-4	-5	-4	-1	-1	1
14	0	2	2	3	1	1	2	1	-2	-3	-3	1	5	5	6	6	6	5	4	5	4	4	6	3
15	6	4	1	4	8	6	4	2	1	-5	-24	-23	-14	-15	-15	-17	-16	-18	-20	-16	-12	-9	-6	-5
16	-7	-7	-5	-11	-16	-16	-15	-10	-6	-2	-3	-10	-12	-9	-4	-4	-6	-7	-6	-4	-2	0	-3	-6
17	-5	-3	-2	-1	0	2	6	9	11	13	10	7	7	6	6	9	13	13	13	10	7	10	13	14
18	9	11	12	33	30	25	29	26	9	20	12	8	13	10	9	5	3	1	-3	0	-2	0	-7	-11
19	-11	-9	-9	-13	-10	-9	-8	-8	-3	-1	-1	-3	-2	-12	-18	-6	0	-3	-11	-9	-7	-3	-3	-6
20	-8	-11	-11	-9	-10	-13	-9	-1	2	2	1	-2	-4	-5	-3	-5	-5	-7	-11	-13	-17	-12	-10	-18
21	-20	-17	-14	7	4	-18	-40	-66	-90	-68	-49	-53	-38	-37	-30	-22	-1	-28	-27	-64	-93	-98	-92	-78
22	-90	-86	-76	-65	-62	-62	-70	-76	-81	-76	-67	-45	-22	-25	-41	-32	-52	-40	-42	-33	-33	-23	-25	-5
23	-14	-7	-22	-39	-36	-31	-32	-40	-43	-37	-32	-31	-23	-19	-18	-12	-15	-19	-18	-15	-25	-41	-50	-47
24	-45	-45	-45	-44	-40	-41	-40	-33	-31	-30	-30	-32	-33	-27	-25	-26	-30	-33	-38	-38	-31	-30	-34	-37
25	-34	-35	-40	-39	-39	-41	-34	-29	-33	-31	-28	-26	-22	-22	-18	-11	-10	-13	-16	-14	-21	-27	-32	-32
26	-35	-43	-39	-34	-35	-38	-45	-41	-37	-37	-37	-35	-32	-31	-27	-26	-34	-33	-43	-55	-57	-57	-66	-72
27	-66	-61	-66	-66	-61	-67	-61	-64	-58	-47	-43	-45	-42	-38	-38	-39	-35	-41	-41	-35	-34	-30	-37	-36
28	-41	-40	-41	-35	-34	-35	-34	-28	-24	-13	-12	-25	-25	-33	-28	-31	-41	-46	-48	-57	-59	-56	-47	-48



PRINCIPAL MAGNETIC STORMS

FEBRUARY 1979

OBS. 3 letter IAGA code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY(3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
SIT	60.1N	3	1824	SC*	- 8 *	+33 *	+13 *	06(6)	5	40	270	280	06	23
JAI	17.3N	3	1823	SC	- .7	27	- 6	--	-	4	96	40	05	03
SHL	14.6N	3	1823	SC	- .2	24	3	--	-	4	91	37	05	03
UJJ	13.5N	3	1823	SC	- .3	32	- 7	--	-	3	103	33	05	03
ABG	09.5N	3	1823	SC	- .6	25	- 5	03(7)	5	3	122	32	05	03
GUA	04.0N	3	1823	SC	--	+17	- 4	04(1)	5	--	110	40	04	18
ANN	01.4N	3	1823	SC	- 1.2	33	18	26(6,7)	5	3	172	50	05	03
HUA	00.6S	3	1824	SC	5	150	12	04(6)	6	12	398	42	04	23
TRD	01.2S	3	1823	SC	--	29	35	--	-	--	--	--	05	03
KGL	56.5S	3	1819	SC	+21	+45	+16	03(7)	5				04	09
SIT	60.1N	11	0148	SC	+ 2	-10	- 2	12(4)	6	50	370	340	12	20
NEW	55.1N	11	0147	SC*	2	18	3	12(3)	5	26	79	116	12	21
HON	21.1N	11	0148	SC*	- 1	+ 4	+ 2	11(1,2)	3	1	37	8	11	14
JAI	17.3N	11	2000	..	..	..	..	--	-	3	71	27	12	22
SHL	14.6N	11	2000	..	..	..	..	--	-	4	89	28	12	22
UJJ	13.5N	11	2000	..	..	..	..	--	-	2	66	27	12	22
ABG	09.5N	11	2000	..	..	..	..	04(5,6)	5	2	97	30	12	22
GUA	04.0N	11	0147	SC*	--	+33	-11							
ANN	01.4N	11	2000	..	..	..	..	28(2,4,5,6,7)	4	4	167	40	12	22
HUA	00.6S	11	0148	SC	1	22	4	12(5,6)	5	11	350	70	12	21
TRD	01.2S	11	2000	..	..	..	..	--	-	--	--	--	12	22
KGL	56.5S	11	0145	SC*	+33	-24	+16	11(1) 12(2,4)	4				12	21
HUA	00.6S	15	1347	..	..	..	..	15(5,6,7)	5	8	212	32	15	23
COL	64.6N	18	0304	SC*	-10	+52	-15	19(5)	6	74	820	380	19	17
JAI	17.3N	18	0306	SC	- .8	17	- 5	--	-	5	97	30	19	03
SHL	14.6N	18	0306	SC	--	--	--	--	-	5	103	32	19	03
UJJ	13.5N	18	0306	SC	--	46	-11	--	-	4	107	25	19	03
ABG	09.5N	18	0306	SC	--	--	--	11(1,2)	4	2	117	33	19	03
GUA	04.0N	18	0305	SC*	+ 1	+67	-21	18(2)	5	--	160	60	19	15
ANN	01.4N	18	0306	SC	- 2.3	80	29	--	-	4	180	73	19	03
TRD	01.2S	18	0306	SC	--	--	--	--	-	4	232	--	19	03
PMG	18.6S	18	0305	SC	+ .5	+48	+48	18(2)	5	9	130	90	19	00
HER	33.7S	18	0305	SC*	+ 6	+21	+23	18(4)	5	32	113	64	19	19
GNA	43.3S	18	0305	SC*	+ 3.5*	+35	+24 *	18(2)	5	19	90	100	19	18
TOO	46.7S	18	0305	SC	+30	+47	+11	18(3)	5	20	130	20	19	16
KGL	56.5S	18	0305	SC*	+49	+53	+22	18(4,7,8)	4				19	12
KGL	56.5S	18	2027	SC	- 8	+13		18(7,8)	4				19	12
COL	64.6N	21	0301	SC*	+17	+115	+30	21(3,7,8) 22(3,4) 23(4,5)	6	172	1210	780	24	18
SIT	60.1N	21	0303	SC*	- 4 *	+25 *	+ 4 *	22(4)	7	110	650	590	28	23
NEW	55.1N	21	0301	SC*	1	26	3	21(3) 22(4)	6	60	287	252	24	02
WIT	54.2N	21	0302	SC	- 6	+45		21(3,6,7)	6	38	225	65	23	14
FRD	49.6N	21	0302	SC	+ 2	+30	- 6	21(3)	6	25	171	85	28	17
SJG	29.9N	21	0302	SC	+ .5	+18	+ 4	21(7)	7	13	173	51	23	23
HON	21.1N	21	0301	SC	+ 1	+ 6	+ 3	21(3,7)	6	7	143	22	23	23
JAI	17.3N	21	0300	SC	- 1.0	17	- 5	--	-	7	181	53	24	04
SHL	14.6N	21	0300	SC	- .4	23	2	--	-	6	159	63	24	04
UJJ	13.5N	21	0300	SC	--	--	--	--	-	5	212	50	24	04
ABG	09.5N	21	0300	SC	- .8	17	- 6	18(3)	5	6	228	50	24	04
GUA	04.0N	21	0302	SC*	+ 1	+43	-12	23(1)	6	10	240	60	24	15
ANN	01.4N	21	0300	SC	- 1.3	21	9	--	-	5	324	108	24	04
HUA	00.6S	21	0302	SC	1	25	5	21(6,7)	8	20.	806	79	23	23
TRD	01.2S	21	0300	SC	--	--	--	--	-	--	--	--	24	04
API	16.0S	21	0302	SC	+ 1	+22	-10	21(3)	6	12	175	45	24	06
PMG	18.6S	21	0301	SC	+ .1	+22	+18	21(3)	7	11	190	120	24	00
HER	33.7S	21	0302	SC*	+ 2	+27	+18	21(6,7,8)	6	37	154	194	24	12
GNA	43.3S	21	0304	SC*	- 6.4*	-17 *	-28 *	21(7)	6	44	120	140	23	22
TOO	46.7S	21	0302	SC*	- 5	+31 *	+ 8	21(3,7)	6	34	180	100	23	23
KGL	56.5S	21	0302	SC*	+45	-48	-22	21(7)	8				24	09
KGL	56.5S	21	1550	SC	+41	+111	+33	21(7)	8				24	09
NEW	55.1N	25	11--	..	..	..	..	27(1)	5	34	146	174	28	04
JAI	17.3N	25	0400	..	..	..	..	--	-	7	89	44	28	03
SHL	14.6N	25	0400	..	..	..	..	--	-	5	75	86	28	03
UJJ	13.5N	25	0400	..	..	..	..	--	-	--	101	36	28	03
ABG	09.5N	25	0400	..	..	..	..	21(3,6,7,8)	6	6	110	36	28	03
ANN	01.4N	25	0400	..	..	..	..	--	-				28	03
TRD	01.2S	25	0400	..	..	..	..	--	-				28	03
COL	64.6N	26	05--	..	..	..	..	26(4)	6	148	930	530	27	18
GUA	04.0N	26	0022	..	..	..	..	27(1)	5	--	110	30	27	18
JAI	17.3N	28	0927	SC	- .2	8	- 1	--	-	4	82	24	01	03
SHL	14.6N	28	0927	SC	--	--	--	--	-	4	70	19	01	03
UJJ	13.5N	28	0927	SC	- .1	10	- 2	--	-	3	99	21	01	03
ABG	09.5N	28	0927	SC	- .1	8	- 1	22(4) 23(1,2,3)	6	3	105	24	01	03
ANN	01.4N	28	0927	SC	--	--	--	--	-				01	03
TRD	01.2S	28	0927	SC	--	--	--	--	-				01	03

Reports were received from the following observatories:

ALIBAG ANNAMALAINAGAR APIA COLLEGE FREDERICKSBURG GNANGARA GUAM HERMANUS HONOLULU HUANCAYO JAIPUR KERGUELEN NEWPORT PORT MORESBY SAN JUAN SHILLONG SITKA TOOLANGI TRIVANDRUM UJJAIN WITTEVEEN

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

FEBRUARY 1979

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS

The meaning of the station symbols is given in the IAGA-News nr. 16.
Times of ssc are mean values.

Sudden commencements followed by a magnetic storm or a period of storminess (ssc).

03	1823	A:	ESK	DOU	VIC	OTT	COI	TOL	LMM ;			
		B:	WNG	WIT	HAD	FUR	MMB	AQU	EBR	KSA	CZT	KGL	DRV?;
		C:	NGK	HAZ	KNY							
11	0148	A:	DOU	VIC	TOL	LMM ;						
		B:	SOD	WNG	WIT	FUR	AQU	EBR	COI	CZT	KGL	DRV
		C:	NGK	HAD	HAZ	(si:	A:	DOB)				
18	0304	A:	SOD	DOB	NUR	ESK	WNG	WIT	DOU	VIC	FUR	AQU	EBR
			TOL	KSA	LMM	KGL ;							
		B:	HAD	OTT	MMB	CZT	DRV ;						
		C:	NKG	HAZ	(si:	A:	KNY -	pil:	A:	MMB)			
21	0302	A:	SOD	DOB	NUR	ESK	WNG	WIT	HAD	DOU	VIC	FUR	DOU
			OTT	EBR	TOL	FRD	KSA	LMM	CZT	KGL ;			
		B:	NKG	HAD	MMB	AQU	KAK	HAZ	KNY	DRV ;			
21	1551	A:	KGL;										
		B:	WNG	EBR ;									
		C:	DRV	(si:	A:	VIC;	B:	LMM	-bs:	A:	KSA)		

Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined.

08	0206	-0230	KNY	16	0146	-0315	MMB	KAK	HAZ	KNY	20	2349	-2357	HAZ
10	1120	-1143	EBR ?	17	0232	0320	MMB				21	0043	-0054	HAZ
10	1245	-1320	WNG	18	0641	-0705	HAZ	KNY			21	2355	-0010	HAZ KNY
12	0211	-0230	HAZ	18	2340	-2359	HAZ				22	0033	-0105	MMB HAZ KNY
12	1157	-1238	WNG	19	0354	-0403	HAZ				22	0505	-0530	HAZ (KNY)
13	0448	-0512	HAZ KNY	19	0439	-0454	HAZ				23	0103	-0107	HAZ
14	0104	-0124	HAZ	20	2303	-2314	HAZ							

Very unusual events : none

RADIO PROPAGATION QUALITY INDICES

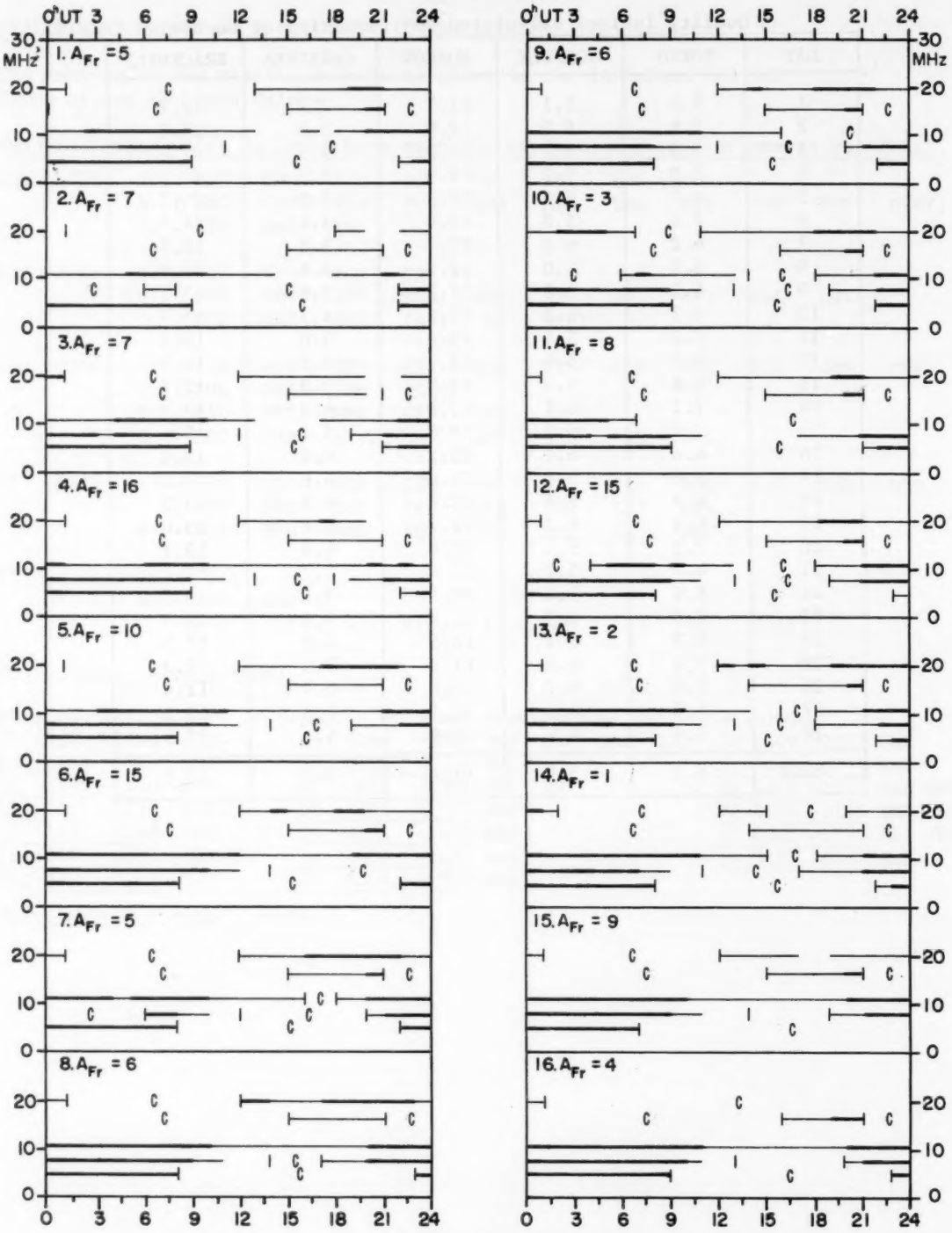
FEBRUARY 1979

Quality Indices calculated for reception at Lüchow

DAY	TOKYO	NORFOLK	MOSCOW	CANBERRA	BRACKNELL
1	5.4	5.1	11.7	2.7	12.7
2	5.6	5.1	12.0	2.7	12.6
3	5.8	5.1	12.0	3.1	12.6
4	5.8	5.2	12.3	3.3	12.7
5	4.5	5.9	12.9	3.0	13.1
6	5.4	5.8	13.0	3.6	12.7
7	6.2	6.0	12.7	3.6	12.7
8	6.4	6.0	12.7	3.4	13.0
9	6.2	5.9	12.2	3.6	13.1
10	6.7	5.3	12.2	4.1	13.1
11	7.0	5.4	12.4	3.0	13.1
12	6.5	5.6	12.7	3.5	13.0
13	6.6	5.3	12.0	3.8	12.7
14	7.2	6.1	12.2	4.8	13.3
15	7.1	6.0	12.8	5.1	13.1
16	6.6	6.1	12.2	4.4	13.1
17	6.6	5.8	12.6	4.6	13.2
18	6.4	5.8	12.3	4.4	13.2
19	6.5	6.2	12.7	3.8	13.0
20	7.1	6.4	12.8	4.4	13.1
21	4.7	5.1	12.1	2.7	12.7
22	5.0	5.4	12.4	3.2	11.8
23	7.6	6.3	12.9	4.0	12.9
24	8.3	6.4	12.5	4.2	12.5
25	7.4	6.2	11.8	3.9	12.7
26	5.9	5.7	12.2	2.9	12.4
27	5.5	6.1	12.4	3.1	12.5
28	6.4	6.4	11.9	4.1	12.5
MEAN	6.3	5.8	12.4	3.7	12.8

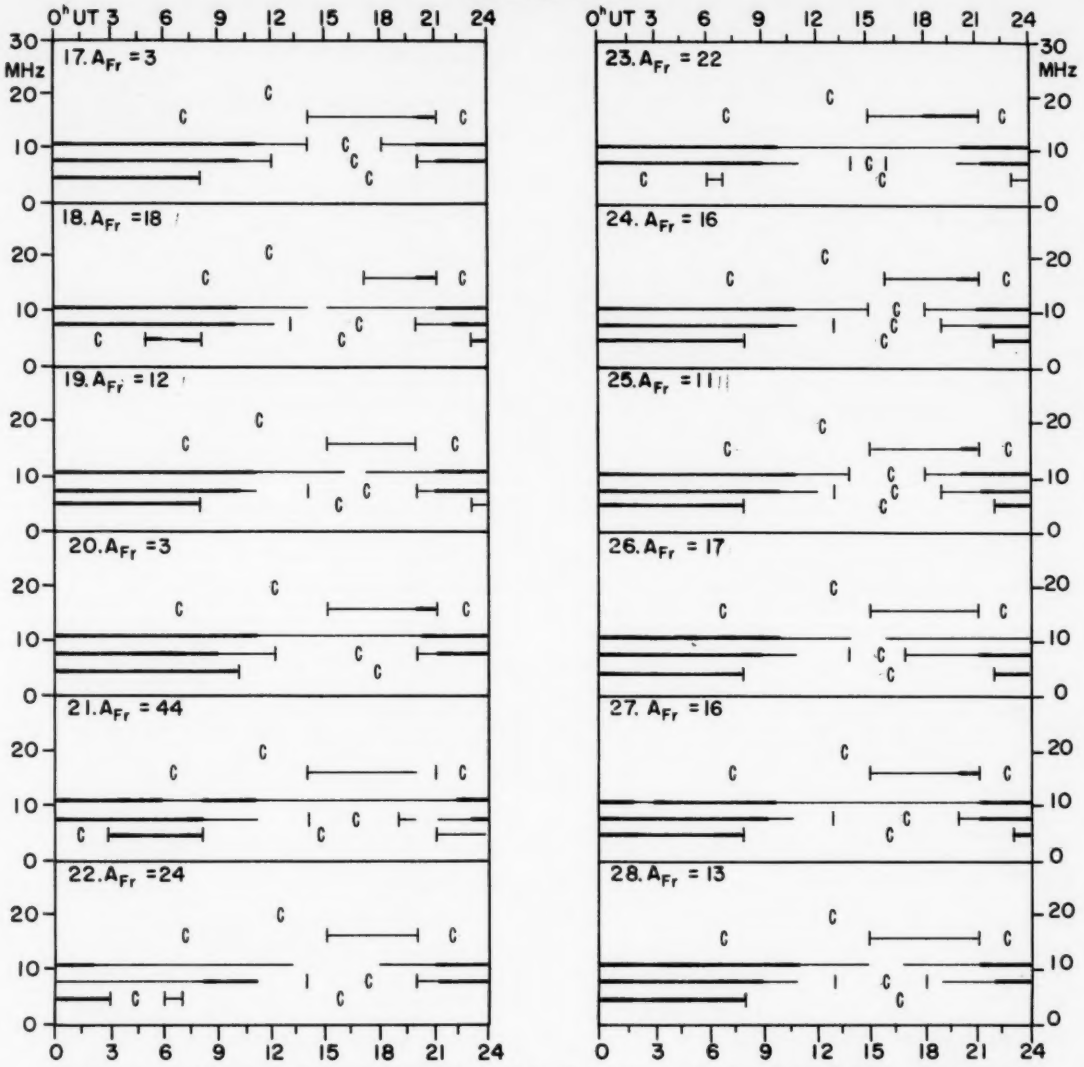
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

FEBRUARY 1979



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

FEBRUARY 1979



Field strengths from five frequencies, 5.0, 8.1, 10.9, 16.4 and 20.0 MHz, observed on a Lüchow - Norfolk circuit are represented above. Heavy solid lines represent field strengths ≥-12 dB above 1 μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line.

Adapted from Observations by Deutsche Bundespost

USCOMM-NOAA-Asheville, NC--5-79-950

APRI

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Data
Explan

no

APRIL 1979 NUMBER 416 -- Part II

P-A STACKS

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MAY 25 1979

Solar-Geophysical Data comprehensive reports

Data for October 1978 -- September 1978 & Miscellanea
Explanation of Data Reports Issued as Number 414 (Supplement) February 1979

NEW X-RAY PLOTS PAGES 52 AND 96

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Solar - Geophysical Data

NO. 416 APRIL 1979

Part II (Comprehensive Reports)

DATA FOR
OCTOBER 1978
SEPTEMBER 1978

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
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Solar-Geophysical Data, 414 Part I (or Part II), pages, December 1979 U.S. Department of Commerce, (Boulder, Colorado, U.S.A. 80303).

SOLAR-GEOPHYSICAL DATA

No. 416

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

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Energetic Solar Particles
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A = Part I, B = Part II.

—— = no data available.
blank = data not yet received.

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ACTIVE REGIONS

CARRINGTON ROTATION 1673

(September 20 to October 17, 1978)

Region No.	Coordinates Lat.	Coordinates Long.	Age at CMP	IMP.	Spot-less Region	Region No. in Rotation 1673	Activity at West Limb
1	15°S	353°	-2	2			decreasing
2	9 N	348	>6	1	x		dispersed
3	17 N	346	>6	1	x		disappeared
4	16 S	345	>6	1	x		dispersed
5	15 N	337	+5	4			decreasing
6	24 S	334	>6	3		(6)	decreasing
7	21 S	320	+5	2			disappeared
8	32 N	320	-2	1	x		decreasing
9	22 N	308	+4	2			decreasing
10	24 N	308	>6	3			decreasing
11	14 S	307	+4	4			decreasing
12	19 S	307	+3	2			decreasing
13	20 N	295	+2	2			decreasing
14	20 S	293	+6	1	x		disappeared
15	28 N	277	>6	5			decreasing
16	22 S	276	-6	1	x		(?)
17	13 S	253	+3	2			decreasing
18	22 N	250	>6	1	x	(16)	decreasing
19	19 S	244	+6	2			decreasing
20	13 S	239	>6	2			decreasing
21	28 N	239	>6	1	x		decreasing
22	13 N	234	-4	1	x		disappeared
23	17 S	231	>6	2			decreasing
24	17 S	226	+3	2			decreasing
25	36 N	216	>6	2			decreasing
26	17 N	215	>6	4		(25)	decreasing
27	15 N	201	-4	2			decreasing
28	38 N	201	>6	3			decreasing
29	22 S	199	>6	2			decreasing
30	23 S	194	>6	1	x	(28)	decreasing
31	16 N	193	>6	1	x		dispersed
32	31 S	182	>6	1	x	(29)	decreasing
33	18 S	171	>6	1	x		decreasing
34	31 N	167	0	2			decreasing
35	35 S	161	>6	1	x	(32+33)	dispersed
36	10 S	158	+2	2			decreasing
37	15 N	155	>6	5			decreasing
38	31 N	154	+2	1	x		decreasing
39	14 N	147	>6	2			decreasing
40	28 N	142	>6	1	x		decreasing
41	14 N	135	+3	2			decreasing
42	21 S	119	-1	6			increasing
43	25 S	119	+4	5			stable
44	23 N	103	+2	3			decreasing
45	33 N	85	>6	1	x		dispersed
46	34 N	84	-4	1	x		increasing
47	21 S	80	-3	2			decreasing
48	33 N	74	+2	1	x		disappeared
49	16 N	71	-1	2			decreasing
50	30 S	68	+5	2			decreasing
51	15 S	67	+6	2			decreasing
52	21 N	64	>6	2		(45)	decreasing
53	20 S	63	>6	2			decreasing
54	24 S	52	+5	2			decreasing
55	18 S	51	>6	2		(46)	decreasing
56	20 S	50	+1	6			decreasing
57	20 S	38	+3	2			disappeared
58	20 N	38	>6	4			stable
59	18 S	23	>6	5		(45)	decreasing
60	21 S	13	>6	5			stable
61	28 N	9	>6	4			decreasing
62	13 N	8	+1	2			disappeared
63	28 S	6	>6	1	x		dispersed
64	22 S	4	+6	3			decreasing

ACTIVE REGIONS

CARRINGTON ROTATION 1674

(October 17 to November 13, 1978)

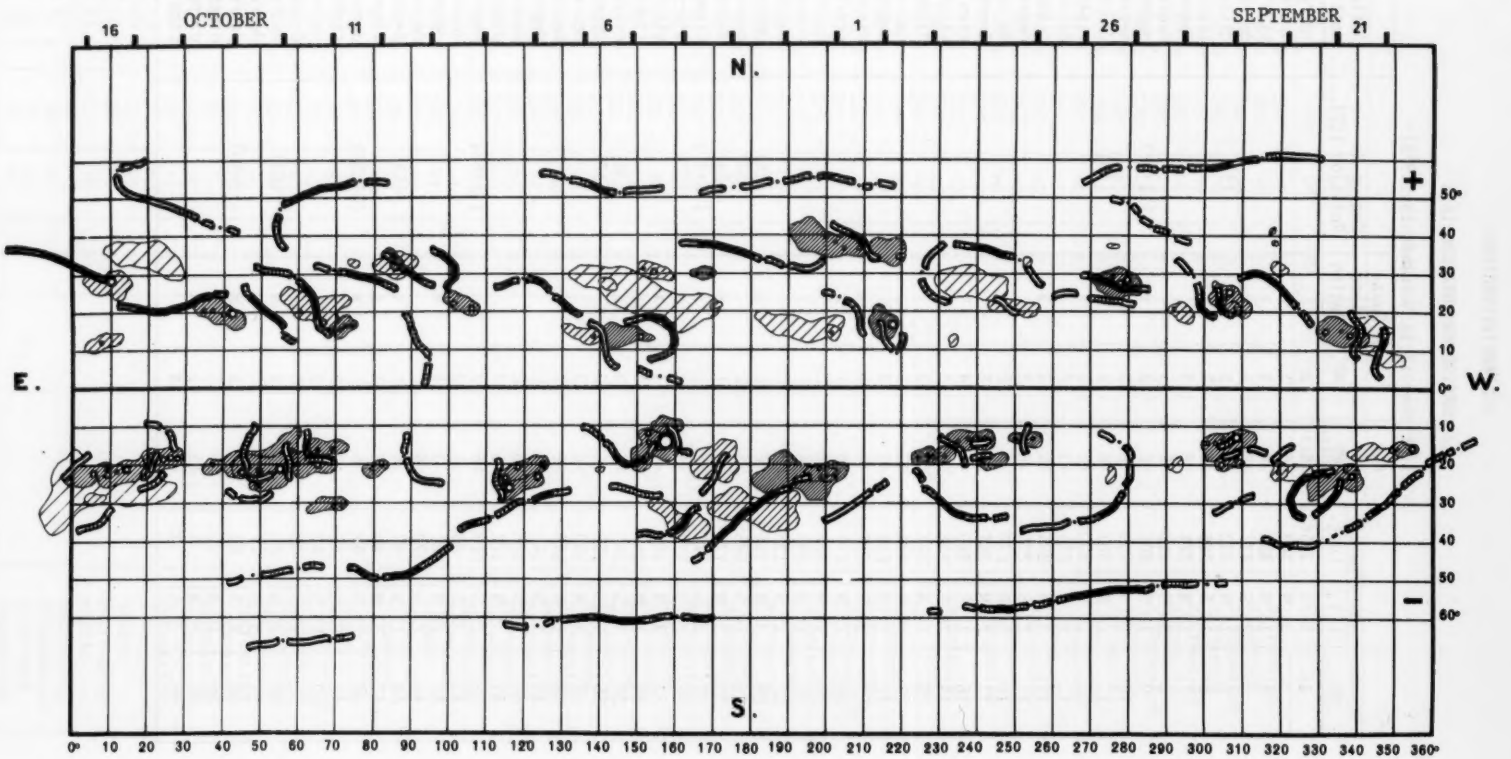
Region No.	Coordinates Lat.	Coordinates Long.	Age at CMP	IMP.	Spot-less Region	Region No. in Rotation 1674	Activity at West Limb
1	33°N	356°	>6	2			decreasing
2	37 N	349	>6	1	x		decreasing
3	15 N	338	-2	1	x		stable
4	25 S	337	+5	1	x		decreasing
5	14 N	332	>6	1	x	(5)	disappeared
6	19 S	326	+3	1	x		stable
7	18 N	324	>6	3			decreasing
8	30 N	316	>6	5			decreasing
9	18 S	309	>6	1	x	(11+12)	decreasing
10	28 S	309	>6	3			decreasing
11	23 N	303	>6	1	x	(10)	decreasing
12	19 N	300	+5	1	x		disappeared
13	15 N	294	+3	2			decreasing
14	33 N	284	+5	1	x		disappeared
15	22 S	275	>6	3			decreasing
16	32 N	270	>6	2			decreasing
17	26 N	264	>6	5			decreasing
18	15 S	250	+4	4			stable
19	28 S	246	-4	1	x		stable
20	14 N	243	>6	1	x		dispersed
21	18 N	234	+2	1	x		decreasing
22	22 N	214	+1	2			decreasing
23	38 S	212	+3	1	x		dispersed
24	22 N	211	>6	1	x		decreasing
25	18 N	208	>6	3			decreasing
26	26 S	205	>6	1	x		decreasing
27	19 S	198	>6	4			decreasing
28	37 N	194	>6	1	x	(25)	decreasing
29	20 S	185	>6	2		(30)	decreasing
30	39 N	173	>6	1	x	(28)	decreasing
31	33 S	172	>6	1	x	(32+35)	dispersed
32	21 S	170	>6	1	x	(33)	dispersed
33	34 N	169	-3	1	x		stable
34	13 N	162	+1	1	x		stable
35	11 S	160	>6	1	x	(36)	decreasing
36	15 S	159	>6	2		(37)	decreasing
37	30 N	150	>6	2			decreasing
38	15 N	148	>6	1	x		decreasing
39	11 S	147	+5	2			decreasing
40	18 S	125	>6	2			decreasing
41	5 N	122	+6	2			disappeared
42	25 S	113	>6	2		(42+43)	decreasing
43	22 S	96	+1	2			decreasing
44	25 N	81	-3	1	x		decreasing
45	13 S	79	>6	7			decreasing
46	19 S	62	>6	1	x	(53)	decreasing
47	37 N	60	+3	1	x		dispersed
48	23 S	48	>6	1	x	(54+56)	decreasing
49	22 N	46	+1	6			stable
50	19 S	44	+1	2			decreasing
51	17 N	43	>6	5			decreasing
52	25 N	30	>6	1	x	(58)	decreasing
53	37 S	25	-4	1	x		decreasing
54	21 S	23	>6	1	x	(59+60)	decreasing
55	10 N	20	+6	1	x		disappeared
56	26 N	4	+1	1	x		dispersed
57	24 S	3	>6	4			stable

SYNOPTIC SOLAR MAP

CARRINGTON ROTATION 1673

SEPTEMBER 20 TO OCTOBER 17, 1978

MEUDON OBSERVATORY

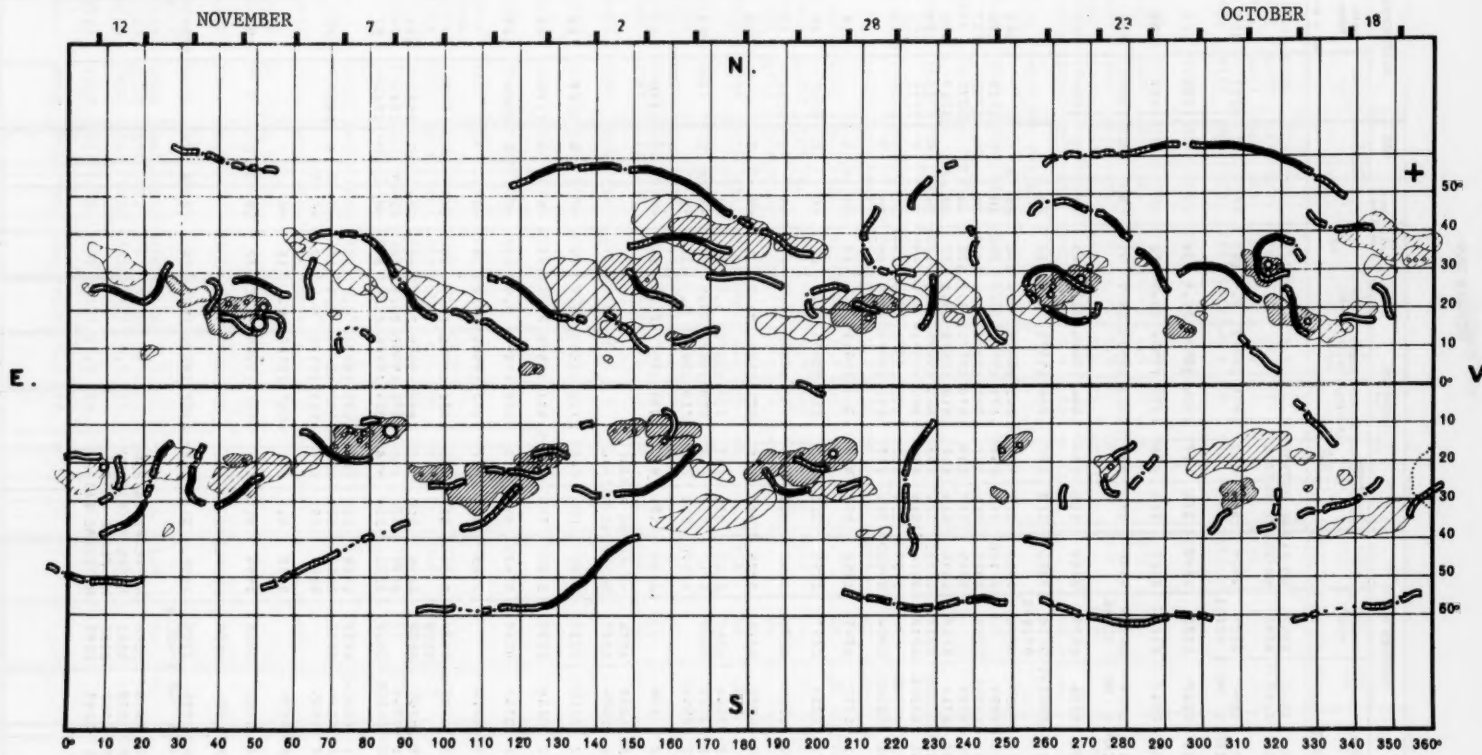


SYNOPTIC SOLAR MAP

CARRINGTON ROTATION 1674

OCTOBER 17 TO NOVEMBER 13, 1978

MEUDON OBSERVATORY



7 Oct 78

Hα SOLAR FLARES

OCTOBER 1978

OBSERVATORY	OBSERVED UT				LOCATION					DURATION MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE OCT	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY			CONG	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
	01	0045	0052	NO FLARE PATROL													
	01	0057	0058	NO FLARE PATROL													
367 CULG	01	0152	0223	0415	S14	E60	.891	15570	5.6	143	?F		C	0223	160	3.6	K Y5
	IMP.1 NO		MITK1														
368 CULG	01	0207	0222	0245	S16	W17	.474	15563	29.8	38	-N		C	0222	70	.8	Y5
369 CULG	01	0404	0411	0427	S13	W26	.537	15554	29.2	23	-F		C	0411	80	1.0	Y5
370 CULG	01	0435	0454	0530	S14	W31	.603	15554	28.9	55	?N		C	0454	160	2.0	FK Y5
	IMP.1 NO		MITK1														
371 CULG	01	0526	0535	0609	S16	E38	.694	15566	4.1	43	-F		C	0535	40	.6	Y5
GRP69372	01	0653>9	0718 0730+3	0851	S13	E57	.866	15570	5.6	118	2N						EJUZ
TEHR	01	0653	0730	0913	S10	E55	.841	15570	5.4	140	2B	2	C		668		Z U
MITK	01	0658		0712D	S12	E58	.871	15570	5.6	140	1N		C	0712	220	4.4	E
BUCA	01	0700E	0730	0900	S14	E57	.868	15570	5.6	120D	2N		C	0730	537	11.7	U
ISTA	01	0705		0845	S12	E59	.879	15570	5.7	100	1N			0730			F
ATHN	01	0713	0718	0840	S15	E50	.810	15570	5.1	87	2N	1		0718	491	7.8	
CULG	01	0721E	0733U	0733D	S14	E57	.868	15570	5.6	12D	3B		P	0733	600	12.0	JU
ABST	01	0732E	0732	0835	S15	E55	.854	15570	5.4	63D	3N		P	0732	696	14.2	EJ
TACH	01	0733E		0807	S14	E60	.891	15570	5.8	34D	3F		V	0733	1061	24.2	U
KHAR	01	0824E	0824	0950D	S14	E60	.891	15570	5.9	86D	1N		P				BE
373 RAMY	01	1337	1343	1350	N30	W68	.925	15551	26.5	13	-N	4	C		15		Y5
374 CULG	01	2233	2247	2259	S12	W42	.717	15554	28.8	26	-F		C	2247	30	.4	Y5
375 CULG	02	0215	0226	0258	S20	W80	.992	15572	26.1	43	-N		C	022E	30		Y5
376 PALE	02	0225	0226	0229	N28	W79	.975	15551	26.2	4	-N	3	C		16		DE Y5
GRP69377	02	0644	0647	0712	S11	E43	.723	15570	5.5	28	-N						D
TEHR	02	0644	0647	0712	S12	E43	.727	15570	5.5	28	-N	2	C		63		
ISTA	02	0650E		0705D	S10	E43	.719	15570	5.5	15D	-N						D
378 BUCA	02	0835		0849	S21	W85	.999	15572	26.0	14	-N		C	0836	43		D Y5
	02	1235	1236	NO FLARE PATROL													
	02	1624	1637	NO FLARE PATROL													
379 CULG	02	2216	2219	2257	N14	E46	.716	15569	6.4	41	-F		C	2219	60	.8	Y5
380 CULG	03	0232	0235	0329	S20	W90	1.001	15572	26.4	57	-N		C	0235	40		Y5
381 CULG	03	0302	0309	0343D	N43	W10	.608	15557	2.4	41D	-F		C	0309	100	1.3	L Y5
382 ISTA	03	0715		0745	S20	W57	.883	15556	29.0	30	-N						D Y5
GRP69383	03	0755+0	0802 0810	0835	S17	W58	.883	15556	29.0	40	1N						J
BUCA	03	0755	0802	0835	S17	W59	.890	15556	28.9	40	1N		C	0802	161	3.6	
ISTA	03	0755		0835	S20	W56	.876	15556	29.1	40	2B	*		0815			F
ABST	03	0806E	0810	0825	S17	W58	.883	15556	29.0	19D	-N		P	0810	87	1.8	DJ
GRP69384	03	0834+1	0837	0848	S07	E26	.489	15570	5.3	14	-F						J
ABST	03	0834	0837	0850	S08	E26	.497	15570	5.3	16	-N	*	C	0837	87	1.0	DJ
ISTA	03	0835		0845	S07	E27	.503	15570	5.4	10	-F	*					E
385 ISTA	03	0835		0850	N17	E36	.597	15569	6.1	15	-N						E Y5
386 HOLL	03	1422	1428	1454	N18	E35	.587	15569	6.2	32	1B	3	C		199		FDE Y5
	03	1555	1606	NO FLARE PATROL													
387 PALE	03	1715	1755	1859	S12	E23	.492	15570	5.4	104	?B	3	C		221		U F Y5
	IMP.1 NO		HOLL1														
	03	2008	2022	NO FLARE PATROL													
	03	2033	2041	NO FLARE PATROL													
	03	2052	2102	NO FLARE PATROL													
	03	2143	2152	NO FLARE PATROL													

Hα SOLAR FLARES

OCTOBER 1978

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY			CONC	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg	
	OCT									MIN.							
GRP69388	04	0058+1	0101+4	0126	S14	E22	.500	15570	5.7	28	-N		C				E
CULG	04	0058	0105	0135	S15	E22	.510	15570	5.7	37	1N		C	0105	300	3.5	
MITK	04	0059	0101	0117	S13	E23	.501	15570	5.8	18	-F		C	0101			E
389 CULG	04	0109	0118	0135	N25	E32	.584	15578	6.4	26	-N		C	0118	30	.4	Y5
390 VORO	04	0123E		0126	N22	E58	.847		8.4	30	-F		C	0124	27	.4	Y5
GRP69391	04	0328+5	0330+9	0354	S16	E21	.510	15570	5.7	26	-N				130	1.5	J
MITK	04	0328	0330	0358	S16	E23	.531	15570	5.9	30	-N		C	0330			E
CULG	04	0329E	0334U	0356D	S18	E21	.532	15570	5.7	27D	-N		P	0334	130	1.5	
VORO	04	0330	0333	0356	S16	E24	.541	15570	5.9	26	1N		C	0333	188	2.2	EJ
TEHR	04	0333	0337	0343	S17	E17	.484	15570	5.4	10	-B	1	C		127		FDE
PALE	04	0337E	0339U	0341D	S12	E19	.446	15570	5.6	4D	-B	3	C		91		FDE
MANI	04	0347E	0347U	0350D	S17	E22	.531	15570	5.8	3D	-N	3	V		130	1.6	
	04	0423	0435	NO FLARE PATROL													
392 TEHR	04	0423	0428	0439	N28	E31	.592	15578	6.5	16	-B	1	C		63		UDE Y5
	04	0522	0530	NO FLARE PATROL													
393 KANZ	04	1019E	1019	1019D	N15	E26	.452	15569	6.4		-B		C				D Y5
394 MCMA	04	1411	1418	1428	S14	E08	.376	15570	5.2	17	-F		C	1418	40	.4	E Y5
395 MCMA	04	1609E		1611D	S09	E07	.294	15570	5.2	2D	-F		P	1609	50	.5	E Y5
GRP69396	04	1634+6	1640+2 1707	1717	S14	E13	.411	15570	5.7	43	-N				45	.5	ELU
MCMA	04	1634	1642	1721D	S15	E14	.433	15570	5.7	47D	-N		C	1642	50	.5	EL
HOLL	04	1640	1640	1652	S13	E13	.398	15570	5.7	12	-N	3	C		35		U F
HOLL	04	1707	1707	1713	S13	E13	.398	15570	5.7	6	-N	3	C		24		FDE
397 CULG	04	2305	2312	2330	S15	W13	.425	15566	4.0	25	-N		C	2312	30	.3	Y5
GRP69398	04	2319+0	2321+2 2344	0001	S11	E04	.309	15570	5.3	42	-N				90	.9	K
CULG	04	2319	2323	0007	S10	E02	.287	15570	5.1	48	-N		C	2323	60	.6	K
VORO	04	2319	2321	2327	S10	E04	.293	15570	5.3	8	-F		C	2321	116	1.2	
VORO	04	2343	2344	2355	S13	E08	.361	15570	5.6	12	-B		C	2344	72	.8	
399 VORO	05	0051	0053	0056	S14	E08	.375	15570	5.6	5	-B		C	0053	36	.4	Y5
400 CULG	05	0301	0309	0325	S15	E05	.376	15570	5.5	24	-F		C	0309	40	.4	Y5
401 CULG	05	0600	0602	0610	S12	E02	.320	15570	5.4	10	-F		P	0602	40	.4	Y5
	05	1148	1309	NO FLARE PATROL													
GRP69402	05	1335+2	1345 1356	1458	S17	E04	.405	15570	5.9	83	-N				170	1.8	EU
ZURI	05	1335	1338	1338D	S16	E04	.389	15570	5.9	3D	-F		P	1338	60	.7	
HTPR	05	1335	1345	1510	S18	E05	.423	15570	5.9	95	-N		C	1345	200	2.0	E
HOLL	05	1337	1407	1446	S13	E01	.335	15570	5.6	69	1B	3	C		186		U F
ZURI	05	1354E	1356	1404D	S16	E04	.389	15570	5.9	10D	1N		P	1356	290	3.2	
MCMA	05	1403E		1428D	S18	E04	.420	15570	5.9	25D	-N		P	1408	150	1.7	BEU
403 MCMA	05	1403E		1428D	N37	W56	.859	15557	1.4	25D	PF		P	1408	100	2.1	B Y5
	IMP-1 NO 1 HTPRZ HOLL1																
404 HOLL	05	2027	2030	2034	S13	W04	.341	15570	5.6	7	-N	3	C		28		Y5
	05	2118	2120	NO FLARE PATROL													
	05	2122	2132	NO FLARE PATROL													
405 HOLL	05	2231	2234	2244	S13	W05	.345	15570	5.6	13	-N	3	C		33		Y5
GRP69406	06	0123+3	0128+1 0210	0215	S12	W09	.351	15570	5.4	52	-F				50	.5	EJ
CULG	06	0123	0129	0209	S12	W12	.374	15570	5.2	46	-F		C	0129	50	.5	
VORO	06	0126	0128	0137	S13	W07	.353	15570	5.5	11	-N		C	0128	63	.7	EJ
VORO	06	0206	0210	0220	S13	W07	.353	15570	5.6	14	-N		C	0210	27	.3	DJ
407 CULG	06	0457	0500	0507	S17	E90	1.001	15587	13.0	10	-N		C	0507	30		T Y5
408 KANZ	06	0838	0843	0853	S14	W09	.380	15570	5.7	15	-F		C				L Y5

Hα SOLAR FLARES

OCTOBER 1978

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY			CONC	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	OCT									MIN.								
GRP69409	06	0927+1	0929+1	0935	N17	W73	.950	15558	30.9	8	-F				35			
HTPR	06	0927	0929	0935	N17	W73	.950	15558	30.9	8	-F		C	0929	20			
ZURI	06	0928	0930	0935	N17	W74	.956	15558	30.8	7	-N		C	0930	50			
GRP69410	06	1315+3	1320+6	1345	S12	W15	.403	15570	5.4	30	-F						E	
HTPR	06	1315	1320	1350	S13	W15	.415	15570	5.4	35	-F		C	1320	20	.2	E	
ZURI	06	1318	1326	1340	S11	W16	.401	15570	5.4	22	-N		C	1326	160	1.8		
411 KANZ	06	1429	1434	1449	S18	E85	.999	15587	13.0	20	-N		C					Y5
412 KANZ	06	1452	1459	1507	N16	E71	.940	15583	11.9	15	-N		C				E	Y5
413 HTPR	06	1532	1546	1605	S16	E90	1.000	15587	13.4	33	-F		C	1546	40		AET	Y5
GRP69414	06	1646	1655 1716	1724	S15	E77	.982	15587	12.5	38	-B							
HOLL	06	1646	1655	1719	S14	E75	.975	15587	12.3	33	-B	3	C		38		FDE	
PALE	06	1714E	1716U	1729	S17	E80	.991	15587	12.7	150	-B	3	C		39		DE	
	06	1826	1832	NO FLARE PATROL														
	06	2025	2034	NO FLARE PATROL														
	06	2105	2114	NO FLARE PATROL														
415 CULG	06	2155	2159	2230	S15	W40	.708	15566	3.9	35	-F		C	2159	50	.7		Y5
416 VORO	07	0103	0104	0106	S13	W20	.466	15570	5.5	3	-N		C	0104	63	.6	J	Y5
417 VORO	07	0125	0126	0129	S13	W20	.466	15570	5.6	4	-N		C	0126	90	.9	J	Y5
	07	0428	0433	NO FLARE PATROL														
	07	0455	0500	NO FLARE PATROL														
GRP69418	07	0632+0	0632+3	0642	S19	E75	.978	15587	12.9	10	-F				30			
CULG	07	0632E	0632U	0643	S20	E80	.992	15587	13.3	110	-N		P	0632	30			
HTPR	07	0632	0635	0640	S18	E70	.957	15587	12.5	8	-F		C	0635	30	.7		
419 HTPR	07	1204	1207	1211	S18	E67	.942	15587	12.5	7	-F		C	1207	20	.5	E	Y5
420 KANZ	07	1347	1358	1415	S28	W40	.785	15564	4.6	28	-N		C				UG	Y5
GRP69421	07	1454>9	1513 1526	1532	S12	W29	.562	15570	5.4	38	-N							
KANZ	07	1454	1513	1531D	S11	W29	.555	15570	5.4	37D	-B		C					
HTPR	07	1525	1526	1532	S14	W30	.589	15570	5.4	7	-F		C	1526	30	.3		
422 PALE	07	2200	2222	2227	S14	W31	.601	15570	5.6	27	-N	3	C		78		DE	Y5
423 CULG	07	2323	2326	2355	S21	E65	.936	15587	12.8	32	-F		C	2326	40	1.0		Y5
424 CULG	08	0000	0004	0017	S12	W49	.789		4.3	17	-F		C	0004	80	1.3		Y5
425 VORO	08	0019	0019	0022	S12	W36	.646	15570	5.3	3	-N		C	0019	54	.7	D	Y5
426 CULG	08 IMP,1 NO	0024	0025	0050 VORO1 HITK1	S19	E58	.887	15587	12.4	26	?B		C	0025	100	2.1	V	Y5
427 VORO	08	0033	0034	0038	S14	W36	.658	15570	5.3	5	-N		C	0034	54	.7	D	Y5
428 CULG	08 IMP,1 NO	0033	0103U	0119 VORO1	S18	E90	1.001	15591	14.8	46	?F	*	C	0103	50		J	Y5
429 VORO	08	0050	0051	0057	S13	W36	.652	15570	5.3	7	-N		C	0051	81	1.0	E	Y5
GRP69430	08	0100+3	0103 0110	0114D	S12	W36	.646	15570	5.3	14	-N						EJ	
VORO	08	0100	0103	0114	S13	W36	.652	15570	5.3	14	-N		C	0103	63	.8	EJ	
CULG	08	0103	0110	0150	S12	W37	.658	15570	5.3	47	-N		C	0110	50	.7		
GRP69431	08	0121+2	0123+1	0129	S13	W34	.628	15570	5.5	8	-B				160	2.0	J	
PALE	08	0121	0123	0124	S14	W33	.623	15570	5.6	3	1B	3	C		185		FDE	
VORO	08	0123	0124	0134	S13	W36	.652	15570	5.4	11	-N		C	0124	125	1.6	EJ	
432 CULG	08	0150	0211	0240	N14	E40	.643		11.1	50	-N		C	0211	90	1.2		Y5
433 CULG	08	0202	0215	0232	S12	W49	.789		4.4	30	-N		C	0215	80	1.3		Y5
434 VORO	08	0204	0204	0207	S14	W36	.658	15570	5.4	3	-N		C	0204	72	.9	D	Y5

Hα SOLAR FLARES

OCTOBER 1978

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY			COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	OCT									MIN.								
435 VORO	08	0255	0257	0301	S13	W36	.652	15570	5.4	6	-N		C	0257	81	1.0		Y5
436 VORO	08	0319	0322	0331	S13	W36	.652	15570	5.4	12	-N		C	0322	99	1.2		Y5
GRP69437	08	0337+5	0343+0	0350	S18	E70	.957	15587	13.4	13	-F						D	
CULG	08	0337	0343	0353	S19	E70	.958	15587	13.4	16	-F		C	0343	30			
VORO	08	0342	0343	0346	S18	E70	.957	15587	13.4	4	-F		C	0343	90		D	
438 VORO	08	0347	0349	0358	S13	W36	.652	15570	5.5	11	-N		C	0349	108	1.3	E	Y5
439 TEHR	08	0420E	0423	0441	S12	W34	.622	15570	5.6	21D	-B	2	C		95			Y5
440 CULG	08	0420	0424	0436	S13	W18	.444		6.8	16	-N		C	0424	40	.5		Y5
441 CULG	08	0528	0537	0548	S19	E69	.954	15587	13.4	20	-N		C	0537	20			Y5
GRP69442	08	0835+0	0837+4	0854	S16	E63	.915	15587	13.1	19	-N				60	1.4	D	
BUCA	08	0835		0850	S16	E65	.928	15587	13.2	15	-N		C	0841	43	1.3	D	
LOCA	08	0835	0837	0845	S17	E67	.941	15587	13.4	10	-N		V	0837	61	1.8		
ISTA	08	0835		0840	S15	E65	.926	15587	13.2	5	-F						D	
TEHR	08	0840E	0841U	0902	S18	E59	.892	15587	12.8	22D	-B	2	C		95		DE	
ISTA	08	0855		0858	S14	E56	.859	15587	12.6	3	-F						D	
443 KANZ	08	0931	0934	0938	S11	W40	.687	15570	5.4	7	-N		C					Y5
GRP69444	08	1054	1101	1114	S15	E50	.809	15587	12.2	20	-N						EJ	
KANZ	08	1054	1101	1113	S15	E49	.799	15587	12.1	19	-N		C					
ABST	08	1107E	1107	1115	S16	E52	.830	15587	12.4	8D	-N		P	1107	174	3.1	EJ	
445 KANZ	08	1054	1152	1235	S12	W42	.715	15570	5.3	101	-N		C					Y5
GRP69446	08	1336	1348+4	1409	S16	W41	.723	15570	5.5	33	-N				70	1.0	EK	
LVOV	08	1336	1348	1402	S11	W39	.676	15570	5.6	26	-N		C	1348	100	1.4	EK	
MCMA	08	1342E	1352	1415	S22	W44	.783	15570	5.3	33D	-N		C	1352	50	.8	E	
447 MCMA	08	1439	1440	1447	S22	W44	.783		5.3	8	-F		C	1440	40	.7	E	Y5
GRP69448	08	1439+4	1443+1	1500	S14	E49	.796	15587	12.3	21	-F						E	
KANZ	08	1439	1443	1459	S16	E49	.803	15587	12.3	20	-F		C					
MCMA	08	1443	1444	1500	S13	E50	.802	15587	12.4	17	-F		C	1444	70	1.2	E	
GRP69449	08	1759>9	1817+1	1821	S13	W43	.730	15570	5.5	22	-B				130	1.9		
PALE	08	1759	1818	1822	S14	W43	.735	15570	5.5	23	-B	3	C		138		DE	
HOLL	08	1815	1817	1820	S13	W43	.730	15570	5.5	5	-B	3	C		125			
450 PALE	08	1833	1840	1847	S15	E58	.877	15587	13.1	14	-N	3	C		27		DE	Y5
451 PALE	08	1837	1839	1841	S15	E48	.790	15587	12.4	4	-N	3	C		19		DE	Y5
452 PALE	08	1846	1856	1947	S15	E47	.780	15587	12.3	61	-N	3	C		89		DE	Y5
453 HOLL	08	1911	1912	1917	S13	W43	.730	15570	5.6	6	-N	3	C		36			Y5
454 PALE	08	1912	1914	1945	S14	E45	.756	15587	12.2	33	-B	*	C		141		DE F	Y5
GRP69455	08	2007+0	2007+0 2055	2103	S13	W44	.741	15570	5.5	56	-B							
PALE	08	2007	2007	2055D	S14	W44	.745	15570	5.5	48D	1N	3	C		211		DE F	
HOLL	08	2007	2007	2033	S13	W44	.741	15570	5.5	26	-B	3	C		31		FDE	
PALE	08	2007	2055	2055D	S14	W44	.745	15570	5.5	48D	1B	*	C		358		DE F	
HOLL	08	2054	2055	2103	S13	W44	.741	15570	5.6	9	-B	*	C		54			
456 PALE	08	2018	2019	2051D	S18	E51	.828	15587	12.7	33D	-N	3	C		65		DE	Y5
GRP69457	08	2151+2	2153+1	2203	S12	W46	.758	15570	5.5	12	-N				60	.9		
CULG	08	2151	2153	2207	S12	W48	.779	15570	5.3	16	-N		C	2153	70	1.1		
HOLL	08	2153	2154	2158	S13	W45	.751	15570	5.5	5	-B	3	C		50			
458 PALE	09	0001	0004	0009	S14	W46	.765	15570	5.6	8	-B	3	C		128		FDE	Y5
459 TEHR	09	0552	0555	0558	S11	W48	.775	15570	5.6	6	-B	2	C		95		DE F	Y5
460 ABST	09	0730	0733	0745	S17	E89	1.000	15591	16.0	15	1N		C	0733	87		AD	Y5
461 ABST	09	0800	0803	0815	S13	W53	.830	15570	5.4	15	-N		C	0803	87	1.6	DJ	Y5
462 TEHR	09	0841	0844	0850	S13	W51	.811	15570	5.5	9	-N	2	C		95		U F	Y5

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	OCT																	
463 ABST	09	0959	1001	1015	S13	W54	.839	15570	5.4	16	-N		C	1001	87	1.6	DJ	Y5
464 KANZ	09	1110	1113	1120	S12	W56	.854	15570	5.3	10	-F		C					Y5
465 ZURI	09	1300	1330	1352	S12	W56	.854	15570	5.3	52	-F		C	1330	80	1.6		Y5
GRP69466	09	1408+8	1417+1	1421	S18	E50	.819	15587	13.3	13	-F				30	.5		
MCMA	09	1408	1418	1425	S19	E50	.823	15587	13.3	17	-F		C	1418	40	.7	E	
KANZ	09	1413	1417	1421	S18	E49	.810	15587	13.3	8	-F		C					
HUAN	09	1416	1417	1420	S17	E51	.824	15587	13.4	4	-F	1	C	1417	20	.3	D	
GRP69467	09	1529+0	1531	1535	S11	W57	.860	15570	5.4	6	-F						D	
MCMA	09	1529	1531	1535	S12	W59	.878	15570	5.2	6	-F		C	1531	30	.6	D	
KANZ	09	1529		1529D	S11	W56	.851	15570	5.4		-F		C					
468 MCMA	09	1540	1540	1543	S12	W59	.878	15570	5.2	3	-N		C	1540	50	1.0	DV	Y5
469 MCMA	09	1543	1547	1625	S23	W18	.562	15582	8.3	42	-N		C	1547	80	1.0	E	Y5
470 MCMA	09	1552	1553	1617	N20	E68	.922	15589	14.8	25	-N		C	1553	30	.8	EH	Y5
471 MCMA	09	1554	1555	1604D	N15	E33	.552	15583	12.1	10D	-F		C	1555	15	.2	DH	Y5
472 HUAN	09	1720	1720	1723	S17	E88	1.000	15591	16.3	3	-F	1	C	1720	15		D	Y5
GRP69473	09	1951	2022+4	2137	S14	W61	.897	15570	5.3	106	1B				210	4.6	FKUZ	
HOLL	09	1951	2026	2105D	S18	W61	.905	15570	5.3	74D	1B	3	C		155		U F	
PALE	09	2010E	2022	2137	S14	W57	.867	15570	5.6	87D	1B	2	C		264		U F	
CULG	09	2056E	2056	2135D	S12	W64	.915	15570	5.1	39D	1N		P	205E	90	2.3	ZK	
474 CULG	09	2056E	2057	2102	S19	E45	.777	15587	13.2	6D	-F		C	2057	20	.3		Y5
GRP69475	09	2251	2254 2340	0001	S20	E73	.972	15591	15.4	70	-F							
CULG	09	2251	2254	0001	S19	E73	.971	15591	15.4	70	-F		C	2254	30			
CULG	09	2338	2340	2352	S21	E74	.976	15591	15.5	14	-F		C	2340	40			
476 CULG	09	2251	2255	2258	S19	E44	.768	15587	13.3	7	-N	*	C	2255	20	.3		Y5
477 CULG	09	2345	2348	0000	S10	W64	.912	15570	5.2	15	-N		C	2348	40	.9	T	Y5
	09	4435	0000	NO FLARE PATROL														
	09	0255	0307	NO FLARE PATROL														
	09	0310	0609	NO FLARE PATROL														
478 VORO	10	0033	0034	0040	S17	E74	.973	15591	15.6	7	-F		C	0034	54		D	Y5
479 CULG	10	0035	0041	0100	S24	W23	.611	15582	8.3	25	-F		C	0041	30	.4		Y5
480 CULG	10	0137	0144	0149	S11	W64	.913	15570	5.3	12	-N		C	0144	20	.5	T	Y5
481 VORO	10	0152	0153	0156	S25	W24	.629	15582	8.3	4	-N		C	0153	72	.9	DJ	Y5
GRP69482	10	0451+5	0455+2	0503	S10	W62	.898	15570	5.6	12	-N						V	
TEHR	10	0451	0455	0500	S10	W61	.890	15570	5.6	9	-B	1	C		95		FDE	
CULG	10	0456	0457	0505	S11	W64	.913	15570	5.4	9	-N		C	0457	40	.9	VT	
483 CULG	10	0507	0511	0520	N30	W63	.895	15577	5.5	13	-F		C	0511	10	.2		Y5
484 ABST	10	0554	0600	0615	N32	W61	.885	15577	5.7	21	-N		C	0600	87	2.0	DJ	Y5
GRP69485	10	0847+2	0848+2	0852	S10	W66	.925	15570	5.4	5	-F						DJ	
HTPR	10	0847	0848	0849	S13	W68	.941	15570	5.3	2	-F		C	0848	30	.9		
ABST	10	0849	0850	0855	S07	W65	.915	15570	5.5	6	-N		C	0850	87		DJ	
GRP69486	10	0956+5	1002+3	1028	N21	E56	.830	15589	14.6	32	1N				130	2.4	EJU	
TEHR	10	0956	1003	1012	N22	E61	.873	15589	15.0	16	-B	2	C		127		UDE	
HTPR	10	0959	1005	1030	N20	E54	.810	15589	14.5	31	1B		C	1005	140	2.6	E	
KANZ	10	0959	1003	1032	N22	E56	.831	15589	14.6	33	-F		C					
ABST	10	1000	1002	1030	N23	E56	.832	15589	14.6	30	1N		C	1002	131	2.4	EJ	
MONT	10	1001	1002	1024	N20	E57	.838	15589	14.7	23	-N		C	1002	60		E	

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
					APPROX		CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY								
	DATE OCT	START	MAX. PHASE	END	LAT.	MER. DIST.				MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
GRP69487	10	1008+2	1024+0 1030+4	1045	S12	W69	.945	15570	5.2	37	-N						E
HTPR	10	1008	1013	1024	S13	W71	.957	15570	5.1	16	-F		C	1013	10		
MONT	10	1009	1024	1100D	S13	W70	.952	15570	5.2	51D	-N		C	1024	80		E
KANZ	10	1010	1014	1048	S11	W68	.939	15570	5.3	38	-N		C				
HTPR	10	1022	1024	1034	S13	W69	.946	15570	5.3	12	-F		C	1024	20	.5	
TEHR	10	1030	1034	1045	S11	W64	.913	15570	5.6	15	-B	2	C		95		FDE
KHAR	10	1030E	1030	10500	S10	W70	.949	15570	5.2	20D	1F		P				E
ZURI	10	1031E	1031	1037D	S12	W69	.945	15570	5.3	60	1N		P	1031	90		
GRP69488	10	1115	1125	1132	S11	W67	.933	15570	5.4	17	-N				70		D
LVOV	10	1115	1125	1134	S10	W66	.925	15570	5.5	19	-N		C	1125	100		D
ZURI	10	1129E	1129	1130	S12	W69	.945	15570	5.3	1D	-F		P	1129	50		
489 ZURI	10	1243	1251	1309	S17	E74	.973	15591	16.1	26	-F		C	1251	40		YS
490 ZURI	10	1247	1249	1253	S23	W30	.661	15582	8.3	6	-F		C	1249	80	1.1	YS
GRP69491	10	1317+1	1322	1340	S16	E65	.927	15591	15.4	23	-F						EK
HTPR	10	1317		1324D	S16	E66	.933	15591	15.5	7D	-F		C	1322	30	.6	
KANZ	10	1318	1322	1326	S16	E64	.921	15591	15.4	8	-F		C				
MCMA	10	1321E		1353	S20	E65	.934	15591	15.4	32D	-N		C	1350	50	1.5	EK
492 ZURI	10	1423	1425	1427	S12	W71	.956	15570	5.3	4	-F		C	1425	50		YS
493 ZURI	10	1529	1533	1535	S12	W71	.956	15570	5.3	6	-N		C	1533	60		YS
494 MCMA	10	1535E	1542	1600D	S18	E64	.925	15591	15.4	25D	-F		C	1542	20	.5	E YS
495 MCMA	10	1607	1607	1608D	S11	W70	.950	15570	5.4	1D	-N		C	1607	20	.8	DV YS
496 MCMA	10	1610	1615	1622D	S18	E64	.925	15591	15.5	12D	-N		C	1615	15	.3	E YS
497 PALE	10	1734	1746	1758D	S24	W32	.688	15582	8.3	24D	-B	3	C		127		FDE YS
498 MCMA	10	1750	1752	1758	S18	E64	.925	15591	15.5	8	-F		C	1752	20	.7	E YS
499 MCMA	10	1917	1918	1922	S22	W36	.709	15582	8.1	5	-F		C	1918	40	.6	E YS
500 CULG	10	2108	2113	2128	S22	E61	.914	15591	15.5	20	-F		C	2113	30	.8	YS
501 CULG	10	2142	2145	2152	S21	E61	.912	15591	15.5	10	-F		C	2145	30	.8	YS
GRP69502	10	2153+0	2153+1	2202	S24	W34	.705	15582	8.4	9	-N				50	.7	
HOLL	10	2153	2154	2202	S24	W35	.714	15582	8.3	9	-N	3	C		52		F
PALE	10	2153	2153	2200D	S24	W34	.705	15582	8.4	7D	-B	3	C		56		FDE
503 CULG	10	2153	2156	2206	S11	W78	.983	15570	5.1	13	-F		P	2156	10		YS
	10	2208	2218	NO FLARE PATROL													
	10	0400	0448	NO FLARE PATROL													
504 CULG	10	2251	2300	2319	S18	E27	.588	15587	13.0	28	-F		C	2300	10		YS
505 CULG	10 IMP	2256 1 NO	2308 PALE1	0038 VORO1	S25	E60	.914	15591	15.5	102	?N		C	2308	90	2.2	YS
506 VORO	10	2319	2320	2323	S13	W80	.990	15570	5.0	4	-N		C	2322	36		YS
507 VORO	10	2334	2334	2336	S21	W36	.702	15582	8.3	2	-N		C	2334	54	.7	D YS
508 CULG	11	0158	0208	0234	S22	W37	.718	15582	8.3	36	-N		C	0208	80	1.1	FT YS
509 CULG	11	0255	0306	0323	S28	W40	.783	15582	8.1	28	-N		C	0306	70	1.1	FT YS
510 CULG	11	0338	0346	0410	S18	E53	.844	15591	15.1	32	-N		C	0346	60	1.1	YS
511 CULG	11	0449	0453	0508	S25	W40	.764	15582	8.2	19	-N		C	0453	60	.9	T YS
512 CULG	11	0511	0543	0608	S15	E16	.445	15587	12.4	57	-F		C	0543	60	.7	YS
513 CULG	11	0546	0603	0615	S07	W67	.928		6.2	29	-F		C	0603	40	1.0	YS
514 KANZ	11	0752	0800	0820	S22	W40	.746	15582	8.3	28	-F		C				YS

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONC	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	OCT																	
GRP69515	11	0835+8	0845+5 0922	0947	S19	E32	.647	15587	13.8	72	2N				410	5.3	EHJKU	
HTPR	11	0835	0846	0945	S19	E34	.668	15587	13.9	70	1B		C	0846	350	4.5	EFK	
MONT	11	0836	0850	0956	S19	E32	.647	15587	13.8	80	2B		C	0850	600			
HERS	11	0838E	0845	0907	S19	E40	.728	15587	14.4	29D	1F		P	0845	202	2.6	U	
BUCA	11	0840	0848	0900D	S20	E33	.665	15587	13.8	20D	1N		C	0848	322	4.4		
TEHR	11	0843	0850	0938	S20	E30	.635	15587	13.6	55	2B	1	C		572		HOE	
LOCA	11	0850E		1010	S18	E32	.640	15587	13.8	80D	3N		P	0900	1243	16.7		
ABST	11	0920	0922	0950	S23	E30	.661	15587	13.6	30	1N	*	C	0922	174	2.4	EJ	
516 ABST	11	0842	0847	0855	S13	W43	.729		8.1	13	-N		C	0847	87	1.3	E	Y5
517 HTPR	11	0948	0952	1006	S20	E16	.508	15587	12.6	18	-F	*	C	0952	30	.3		Y5
518 ABST	11	0957	1002	1010	S20	W44	.772	15582	8.1	13	-N		C	1002	131	2.0	DJ	Y5
GRP69519	11	1101+0	1102+1	1108	S18	E50	.818	15591	15.2	7	-N				70	1.2	DJV	
HTPR	11	1101	1103	1106	S17	E50	.815	15591	15.2	5	-N		C	1103	60	.9		
ABST	11	1101	1102	1110	S19	E50	.822	15591	15.2	9	-N		C	1102	87	1.5	DJV	
GRP69520	11	1140+3	1145+3	1156	S19	E12	.467	15587	12.4	16	-N				30	.3		
KANZ	11	1140	1147	1158	S19	E12	.467	15587	12.4	18	-B		C					
HTPR	11	1140	114E	1156	S20	E15	.501	15587	12.6	16	-F		C	114E	20	.2	E	
RAMY	11	1143E	1145U	1151	S19	E13	.473	15587	12.5	8D	-B	2	C		28		F	
HEND	11	1143		1157	S19	E11	.460	15587	12.3	14	-F		V					
ZURI	11	1146E	1148	1154	S20	E12	.480	15587	12.4	8D	-N		P	1148	70	.8		
GRP69521	11	1240+4	1242+6	1255	S20	E51	.834	15591	15.4	15	-N							
RAMY	11	1240E	1242U	1252	S19	E52	.839	15591	15.4	12D	-B	3	C		36			
HTPR	11	1241	124E	1255	S20	E49	.817	15591	15.2	14	-F		C	124E	20	.3		
KANZ	11	1244	1248	1256	S20	E51	.834	15591	15.4	12	-F		C					
ZURI	11	1244	1248	1254	S20	E53	.851	15591	15.5	10	-N		C	1248	90	1.8		
GRP69522	11	1437>9	1453	1604	S15	E13	.419	15587	12.6	87	-F				45	.5	K	
HTPR	11	1437		1604D	S16	E15	.449	15587	12.7	87D	-F		C	1503	40	.4	EK	
KANZ	11	1449		1520D	S15	E12	.411	15587	12.5	31D	-F		C					
HCMA	11	1451E	1453	1555	S15	E13	.419	15587	12.6	64D	-N		C	1453	30	.3	D	
HUAN	11	1457E		1613D	S15	E14	.428	15587	12.7	76D	-N	1	P	1505	50	.5	C	
GRP69523	11	1501+7	1517	1525	N16	W64	.894	15569	6.8	24	-F						E	
HTPR	11	1501	1517	1530	N16	W64	.894	15569	6.8	29	-F		C	1517	30	.6	E	
KANZ	11	1508		1520	N17	W65	.901	15569	6.8	12	-F		C					
	11	1923	1942	NO FLARE PATROL														
524 CULG	11	2053	2104	2140	N16	W67	.915	15569	6.8	47	-N		C	2104	50	1.3		Y5
525 CULG	11	2134E	2134E	2139	N35	E76	.966	15592	17.6	5D	-N		P	2134	60			Y5
	11	2207	2219	NO FLARE PATROL														
	11	0116	0137	NO FLARE PATROL														
526 CULG	11	2218	2222	2244	N35	E75	.962	15592	17.6	26	-N		C	2222	40			Y5
527 CULG	11 IMP.1	2305 NO	2311 HOLL1	2353	N33	E80	.979	15592	18.0	48	?F		C	2311	80			Y5
GRP69528	11	2347	2349 2404	0021	S21	W50	.830	15582	8.2	34	-F							
CULG	12	0002	0004	0021	S23	W52	.853	15582	8.1	19	-F		C	0004	30	.5	T	
CULG	11	2347	2349	0003	S20	W49	.817	15582	8.3	16	-F		C	2349	40	.7		
529 CULG	12	0105	0109	0124	N23	W37	.635	15588	9.3	19	-F		C	0109	40	.5	L	Y5
530 CULG	12	0121	0132	0231	N11	W90	1.000	15569	5.3	70	1N		C	0132	50			Y5
531 CULG	12	0122	0125	0133	S23	E46	.804	15591	15.5	11	-F		C	0125	20	.3		Y5
532 CULG	12	0202	0211	0223	N22	W38	.642	15588	9.2	21	-F		C	0211	20	.2		Y5
533 CULG	12	0440	0444	0517	S23	E43	.778	15591	15.4	37	-N		C	0444	60	1.0	J	Y5
534 CULG	12	0600	0603U	0603D	S23	W53	.861	15582	8.3	3D	1F		P	0603	100	2.0		Y5
GRP69535	12	0650+7	0706 0714	0733	N19	E26	.476	15589	14.2	43	-N							
CULG	12	0650	0714	0736D	N19	E27	.489	15589	14.3	46D	-N		P	0714	150	1.7	F	
HTPR	12	0657	0706	0730	N20	E26	.482	15589	14.2	33	-N		C	0706	140	1.5	E	

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
					APPROX		CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY									
	DATE OCT	START	MAX. PHASE	END	LAT.	MER. DIST.				MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
536 CULG	12	0659	0703	0736D	N23	W39	.658	15588	9.4	37D	-N		P	0703	40	.5		Y5
537 HTPR	12	0952	0954	1055	N16	W04	.185	15583	12.1	63	-F		C	0954	20	.2	E	Y5
GRP69538	12	1146+1	1151+3	1200	N15	W77	.970	15569	6.7	14	-F							
KANZ	12	1146	1154	1202	N15	W80	.981	15569	6.5	16	-F		C					
HTPR	12	1147	1151	1157	N15	W75	.961	15569	6.9	10	-F		C	1151	80			
539 RAMY	12	1156	1158	1212	S14	W90	1.000	15570	5.7	16	-B	2	C					Y5
GRP69540	12	1307>9	1316	1330	S16	E36	.668	15591	15.2	23	-N						D	
HTPR	12	1307	1316	1333	S16	E37	.679	15591	15.3	26	-N		C	1316	50	.6	E	
KANZ	12	1317		1317	S15	E35	.651	15591	15.2		-B		C				D	
MCMA	12	1325E		1330	S16	E36	.668	15591	15.3	5D	-F		C	1326	20	.3	D	
GRP69541	12	1320	1324+1	1341	S18	E21	.527	15587	14.1	21	-N				60	.7	E	
HTPR	12	1320	1325	1400	S18	E21	.527	15587	14.1	40	-N		C	1325	60	.7	E	
RAMY	12	1322E	1324	1338	S18	E21	.527	15587	14.1	16D	-B	3	C		40		F	
WEND	12	1323E		1340	S19	E22	.547	15587	14.2	17D	-N		P				E	
MCMA	12	1325E		1342D	S19	E20	.529	15587	14.1	17D	-B		C	1326	90	1.1	E	
GRP69542	12	1440+2	1445+2	1454	S12	W90	1.000	15570	5.9	14	1B							
MCMA	12	1440	1445	1455D	S11	W90	1.000	15570	5.9	15D	1B		C	1445				
RAMY	12	1442	1447	1452	S14	W90	1.000	15570	5.9	10	1B	3	C					
GRP69543	12	1605+2	1609+3	1618	S21	E38	.721	15591	15.5	13	-N				80	1.1	ELU	
HTPR	12	1605		1613D	S22	E39	.736	15591	15.6	8D	-N		C	1608	70	.9	E	
MCMA	12	1606	1609	1620	S23	E38	.733	15591	15.5	14	-N		C	1609	80	1.2	EL	
HUAN	12	1607	1612	1618	S21	E40	.740	15591	15.7	11	1N	2	C	1612	180	2.3	E	
HOLL	12	1607	1609	1615	S16	E37	.679	15591	15.4	8	-N	3	C		83		U F	
544 MCMA	12	1624	1629	1641	S21	W60	.905	15582	8.2	17	-N		C	1629	60	1.5	E	Y5
545 HOLL	12	1839	1845	1854	N22	W45	.722	15588	9.4	15	-B	3	C		46		F	Y5
546 HUAN	12	1931		2015D	S19	E11	.459	15587	13.6	44D	-N	1	P	1937	65	.7	E	Y5
547 CULG	12	2022E	2029	2123	S18	E08	.428	15587	13.4	61D	-N		C	2029	60	.7		Y5
548 CULG	12	2031	2037	2127	N18	E23	.429	15589	14.6	56	-F		C	2037	140	1.6		Y5
549 CULG	12	2033	2042	2107	S17	E32	.632	15591	15.3	34	-F		C	2042	30	.4		Y5
550 CULG	12	2134	2144	2225	S19	W67	.943	15582	7.9	51	-N		C	2144	30		T	Y5
551 CULG	12	2231	2237	2301	S25	E28	.661		15.0	30	-F		C	2237	80	1.1		Y5
GRP69552	12	2255+2	2258	2319	S19	W67	.943	15582	7.9	24	-F						J	
			2308+6															
CULG	12	2255	2314U	2325	S19	W67	.943	15582	7.9	30	-F		C	2314	70	1.7	T	
VORO	12	2257	2258	2302	S20	W68	.950	15582	7.9	5	-F		C	2258	45		DJ	
VORO	12	2307	2308	2312	S20	W68	.950	15582	7.9	5	-N		C	2308	54		J	
553 VORO	12	2319	2321	2331	S22	W64	.931	15582	8.2	12	-N		C	2321	99		EJ	Y5
554 VORO	12	2334	2338	2350	S20	W68	.950	15582	7.9	16	-F		C	2338	45		E	Y5
555 VORO	12	2356	2358	0029	S20	W68	.950	15582	7.9	33	?N		C	2358	143		EJK	Y5
	IMP.1	NO	HOLL1	CULG1														
556 VORO	13	0032	0034	0039	S20	W68	.949	15582	7.9	7	?N		C	0034	196		EJ	Y5
	IMP.1	NO	CULG1															
557 VORO	13	0044	0058	0100	S20	W68	.949	15582	7.9	16	-N		C	0058	36		EJ	Y5
558 VORO	13	0108	0110	0115	S21	W67	.946	15582	8.0	7	-N		C	0110	63		EJ	Y5
559 VORO	13	0205	0207	0217	S20	W68	.949	15582	8.0	12	-F		C	0210	63		EJ	Y5
560 CULG	13	0206	0218	0244D	N20	E17	.369	15589	14.4	38D	-N		P	0218	90	1.0		Y5
GRP69561	13	0337+4	0338	0348	S21	W64	.929	15582	8.4	11	-N						J	
			0345															
VORO	13	0337	0338	0344	S20	W68	.949	15582	8.1	7	-F		C	0338	81		EJ	
TEHR	13	0341	0345	0351	S23	W60	.909	15582	8.7	10	-B	1	C		95		FDE	
	13	0400	0500	NO FLARE PATROL														

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		CONC	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
562 TEHR	13	0448	0451	0456	S23	W60	.909	15582	8.7	8	-B	1	C		64		FDE Y5
563 TACH	13	0536E		0558D	S20	E04	.443	15587	13.5	22D	?N		C	0551	309	3.5	D Y5
	IMP↓1 NO ↑ TEHR																
564 TEHR	13	0543	0547	0607	S16	W11	.416	15587	12.4	24	?B	1	C		254		U F Y5
	IMP↓1 NO ↑ TACH																
GRP69565	13	0645	0700	0706	N16	W16	.319	15583	12.1	21	-F						D
HTPR	13	0645	0700	0705	N17	W17	.341	15583	12.0	20	-F		C	0700	20	.2	
ISTA	13	0700E		0706	N16	W15	.305	15583	12.2	6D	-N						D
566 TEHR	13	0729	0737	0743	S23	W61	.915	15582	8.7	14	-B	2	C		95		FDE Y5
567 MONT	13	0804	0808	0817	S22	W69	.957	15582	8.2	13	-F		C	0808	60		E Y5
GRP69568	13	0836+7	0840+3	0847	S21	W66	.940	15582	8.4	11	-B						
TEHR	13	0836	0840	0846	S23	W61	.915	15582	8.8	10	-B	2	C		95		FDE
KANZ	13	0843	0843	0847	S20	W71	.963	15582	8.0	4	-B		C				
GRP69569	13	0845	0858	0928	S19	E05	.431	15587	13.7	43	-F						EH
HTPR	13	0845	0858	0928	S20	E06	.449	15587	13.8	43	-F		C	0858	50	.5	E
KHAR	13	0900E		0918D	S18	E05	.415	15587	13.8	18D	-F		P	0910			BH
570 KHAR	13	0900E		0918D	S18	W75	.977	15582	7.8	18D	F		P	0907	120		B Y5
	IMP↓1 NO ↑ HTPR2			MONT2	KANZ1	KIEV1											
571 ZURI	13	1041	1043	1057	S21	W65	.935	15582	8.6	16	-F		C	1043	80		Y5
GRP69572	13	1043+2	1045+0	1055	N16	W18	.346	15583	12.1	12	-F						
HTPR	13	1043	1045	1055	N16	W18	.346	15583	12.1	12	-F		C	1045	50	.5	
ZURI	13	1045	1045	1055	N16	W18	.346	15583	12.1	10	-N		C	1045	120	1.3	
573 ZURI	13	1049	1051	1103	S20	E06	.449	15587	13.9	14	-F		C	1051	90	1.1	Y5
574 KHAR	13	1107E	1107	1112D	S19	E07	.438	15587	14.0	5D	-F		V	1107			DL Y5
575 ZURI	13	1139	1143	1145	S22	E02	.471	15587	13.6	6	-N		C	1143	50	.6	Y5
GRP69576	13	1155+3	1159+3	1207	S17	E01	.392	15587	13.6	12	-N				130	1.4	
TEHR	13	1155	1200	1208	S16	E01	.375	15587	13.6	13	-B	1	C		159		FDE
WEND	13	1155		1204	S16	E00	.375	15587	13.5	9	-N		V				
ZURI	13	1157	1159	1209	S19	W01	.423	15587	13.4	12	-N		C	1159	120	1.4	
HTPR	13	1157	1159	1205	S19	E01	.423	15587	13.6	8	-F		C	1159	100	1.0	
KANZ	13	1158	1202	1213	S16	E02	.377	15587	13.6	15	-F		C				
577 WEND	13	1158		1210	N17	W19	.368	15583	12.1	12	-F		V				E Y5
GRP69578	13	1202+5	1207+2	1216	S20	W73	.971	15582	8.0	14	-N				60		DH
LVOV	13	1202	1207	1245	S20	W80	.992	15582	7.5	43	-F		C	1207	50		DH
KANZ	13	1206	1209	1213	S20	W71	.963	15582	8.2	7	-N		C				
KHAR	13	1206E		1218D	S17	W75	.977	15582	7.9	12D	-F		P	1206	60		D
ZURI	13	1207	1209	1213	S20	W71	.963	15582	8.2	6	-B		C	1209	60		
GRP69579	13	1233+3	1239>9	1350	S18	W01	.408	15587	13.4	77	2B						FJU
TEHR	13	1233	1246	1247D	S16	E10	.409	15587	14.3	14D	2B	1	C		509		U U
KANZ	13	1233	1249	1355	S18	W01	.408	15587	13.4	82	2N		C				U
ZURI	13	1235	1239	1242	S22	W07	.483	15587	13.0	7	1N		C	1239	260	3.1	
LVOV	13	1235	1242	1350	S18	W02	.409	15587	13.4	75	2N		C	1242	500	5.7	J
HTPR	13	1235	1239	1350	S14	W01	.343	15587	13.4	75	2B		C	1239	550	6.0	EF
ZURI	13	1235	1242	1344	S19	W01	.423	15587	13.4	69	2B		C	1242	880	9.9	
RAMY	13	1236E	1239U	1358D	S20	E03	.441	15587	13.8	82D	1B	3	C		280		U F
WEND	13	1236	1248	1344	S17	W01	.392	15587	13.5	68	2N		P		800	8.6	U
HERS	13	1244E	1244D	1347	S20	E10	.467	15587	14.3	63D	1B		P	1251	317	3.5	U
ZURI	13	1246	1249	1259	S23	W07	.497	15587	13.0	13	-N	*	C	1249	80	1.0	
HUAN	13	1253E		1302D	S18	E00	.407	15587	13.5	9D	1N	2	P	1253	200	2.2	U
LOCA	13	1300E		1345	S17	E00	.391	15587	13.5	45D	1N		P	1300	428	4.8	
HUAN	13	1330E		1401	S18	W02	.409	15587	13.4	31D	-F	1	P	1355	60	.6	
580 ZURI	13	1240	1249	1259	S32	W16	.656	15586	12.3	19	-F		C	1249	100	1.4	Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	OCT																	
GRP69581	13	1406+3	1410+2	1425	S19	E04	.428	15587	13.9	19	-N				80	.9		
HTPR	13	1406	1410	1425	S19	E03	.426	15587	13.8	19	-F		C	1410	80	.8		
KANZ	13	1407	1411	1425	S19	E04	.428	15587	13.9	18	-N		C				F	
HOLL	13	1409	1411	1423	S19	E04	.428	15587	13.9	14	-N	2	C		82		DE	
ZURI	13	1409	1410	1431	S20	E04	.443	15587	13.9	22	1N		C	1410	240	2.8		
WEND	13	1409		1420	S19	E07	.438	15587	14.1	11	-F		V				E	
HUAN	13	1409		1415	S20	E05	.446	15587	14.0	6	-F	1	C				E	
RAMY	13	1410E	1412U	1431D	S20	E05	.446	15587	14.0	21D	-B	3	C		48		F	
582 ZURI	13	1535	1543	1545D	S15	W15	.435	15587	12.5	10D	?F		P	1543	330	3.8		Y5
	IMP+1 NO		HUAN1	HOLL1														
583 HUAN	13	1927		1947	S16	E26	.557	15591	15.8	20	-N	1	C	1933	25	.3	D	Y5
584 HUAN	13	1939	1941	1946	S23	W04	.489	15587	13.5	7	-F	1	C	1941	80	.9	E	Y5
585 HUAN	13	1955		2006	N15	W25	.440	15583	12.0	11	-F	1	C				E	Y5
586 CULG	13	2346	2352	0005	N17	W27	.479	15583	12.0	19	-F		C	2352	30	.4		Y5
587 CULG	14	0035	0038	0055	S18	W85	.999	15582	7.6	20	-F		C	0038	20			Y5
588 CULG	14	0100	0108	0150	S23	E18	.558	15591	15.4	50	?F		C	0108	200	2.4		Y5
	IMP+1 NO		MITK1	VORO1														
589 CULG	14	0103	0105	0112	S18	E00	.406	15587	14.0	9	-F		C	0105	40	.4		Y5
590 CULG	14	0103	0105	0111	N25	E90	.999	15597	20.8	8	-N		C	0105	20			Y5
591 CULG	14	0143	0144	0153	S20	W80	.992	15582	8.1	10	-N		C	0144	20		T	Y5
GRP69592	14	0150+2	0152+1	0200	N32	E48	.785	15592	17.7	10	-F				40	.7	F	
CULG	14	0150	0153	0205	N32	E48	.785	15592	17.7	15	-N		C	0153	30	.5	F	
VORO	14	0152	0152	0154	N32	E48	.785	15592	17.7	2	-F		C	0152	54	.8		
GRP69593	14	0151+1	0154+5	0210	N17	W27	.479	15583	12.1	19	-N				140	1.6	EJ	
VORO	14	0151	0154	0206	N17	W28	.493	15583	12.0	15	1N		C	0154	179	2.0	EJ	
CULG	14	0152	0159	0213	N17	W27	.479	15583	12.1	21	-N		C	0159	100	1.2		
594 CULG	14	0326	0332	0437	S20	W85	.999	15582	7.8	71	-N		C	0332	30		FT	Y5
GRP69595	14	0511>9	0519+5	0530	S19	E01	.422	15587	14.3	19	-N				90	1.0	JU	
CULG	14	0511	0519	0542	S19	E01	.422	15587	14.3	31	-N		C	0519	50	.6		
ABST	14	0518E	0521	0530	S20	E01	.438	15587	14.3	12D	-N		P	0521	87	.9	EJ	
TACH	14	0519	0521	0528	S20	E02	.439	15587	14.4	9	1N		C	0520	221	2.5	D	
TEHR	14	0521	0524	0530	S15	W02	.359	15587	14.1	9	-B	1	C		95		UDE	
GRP69596	14	0527+2	0530+1	0541	S21	E35	.690	15591	16.9	14	-N						DJ	
CULG	14	0527	0530	0537	S21	E35	.690	15591	16.9	10	-N		C	0530	30	.4		
ABST	14	0529	0531	0545	S21	E35	.690	15591	16.9	16	-N		C	0531	87	1.2	DJ	
597 CULG	14	0533	0539	0552	S18	W23	.545	15587	12.5	19	-F	*	C	0539	30	.4		Y5
598 CULG	14	0620	0622D	0622D	S22	W82	.996	15582	8.1	2D	-N		P	0622	30			Y5
599 ABST	14	0648	0651	0705	S23	E80	.993		20.3	17	?N		C	0651	87		DJ	Y5
	IMP+1 NO		HTPR2	MITK1														
GRP69600	14	0648+1	0652+0	0708	S20	E34	.673	15591	16.8	20	-N				90	1.2	J	
HTPR	14	0648	0652	0705	S20	E33	.663	15591	16.8	17	-N	*	C	0652	10	1.2	E	
ABST	14	0649	0652	0710	S21	E35	.690	15591	16.9	21	-N	*	C	0652	87	1.2	DJ	
601 CULG	14	0700E	0702	0714	S22	W82	.996	15582	8.1	14D	-N		P	0702	30			Y5
602 HTPR	14	0726	0727	0731	N22	E03	.281	15589	14.5	5	-F		C	0727	40	.4	E	Y5
603 KANZ	14	0809	0813	0818	S20	E33	.663	15591	16.8	9	-F		C					Y5
GRP69604	14	0845+1	0849+6	0901	S21	E35	.690	15591	17.0	16	-F						DJ	
KANZ	14	0845	0849	0901	S21	E35	.690	15591	17.0	16	-F		C					
ABST	14	0846	0855	0901	S21	E35	.690	15591	17.0	15	-N		C	0855	87	1.2	DJ	
605 HTPR	14	0855	0856	0900	S21	W12	.491	15587	13.5	5	-F		C	0856	20	.2		Y5
606 KANZ	14	0909	0915	0917	S20	E33	.663	15591	16.9	8	-F		C					Y5

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS		MEASUREMENTS			REMARKS
	DATE OCT	START	MAX PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		CONQ	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
GRP69607	14	0946+0	0953	1011	S21	E35	.690	15591	17.0	25	-F						J
KHAR	14	0933E		1012D	S23	E35	.705	15591	17.0	39D	-F		P	0939	65	1.0	D
ABST	14	0946	0953	1010	S21	E35	.690	15591	17.0	24	1N		C	0953	174	2.4	EJ
KANZ	14	0946		1000	S21	E34	.681	15591	17.0	14	-F		C				
ZURI	14	1001E	1001	1027	S22	E35	.698	15591	17.0	26D	-N		P	1001	80	1.2	
608 KHAR	14	1058E	1100	1124D	S23	E35	.705	15591	17.1	26D	-F		P	1100			D Y5
609 LVOV	14	1238	1248	1303	S19	W90	1.001	15582	7.8	25	?N		C	1248	100		DH Y5
	IMP.1 NO 1		HTPR2	KANZ1													
610 KANZ	14	1420	1420	1424	N21	W73	.951	15588	9.1	4	-F		C				Y5
GRP69611	14	1510		1616D	S17	W30	.609	15587	12.4	66	-F						E
HTPR	14	1510		1604D	S18	W30	.617	15587	12.4	54D	-F		C	1534	160	1.8	E
HCMA	14	1533E		1616D	S17	W31	.620	15587	12.3	43D	-N		C	1546	70	.9	E
GRP69612	14	2110	2113+0	2124	S20	E29	.623	15591	17.1	14	-N				80	1.0	
HOLL	14	2110	2113	2122	S20	E32	.653	15591	17.3	12	-N	3	C		91		
PALE	14	2112E	2113	2125	S21	E27	.613	15591	16.9	13D	-B	3	C		73		FDE
GRP69613	14	2342+1	2344+4	2353	S21	W87	1.000	15582	8.5	11	-N						
HOLL	14	2342	2344	2353D	S24	W87	1.000	15582	8.5	11D	-B	3	C				F
PALE	14	2343	2345	2348	S21	W84	.998	15582	8.7	5	-N	3	C		12		DE
MANI	14	2346E	2348U	2353D	S20	W90	1.001	15582	8.2	7D	-N	3	V				
	15	0149	0205	NO FLARE PATROL													
	15	0207	0216	NO FLARE PATROL													
614 PALE	15	0250	0255	0258	N21	W10	.308	15589	14.4	8	-N	3	C		53		F Y5
GRP69615	15	0350E	0356+4	0415	S20	W90	1.001	15582	8.4	25	1B						
TEHR	15	0310E	0400	0415	S21	W90	1.001	15582	8.4	65D	1B	1	C		127		
MANI	15	0353E	0356	0410D	S20	W90	1.001	15582	8.4	17D	1B	3	V				
616 ABST	15	0636	0637	0645	N23	W15	.381	15589	14.2	9	-F		C	0637	87	.9	DJV Y5
617 KANZ	15	0739	0740	0758	N21	W13	.337	15589	14.3	19	-N		C				Y5
618 ABST	15	0804E	0814	0820	N19	W45	.716	15583	12.0	16D	-F		P	0814	87	1.2	EJ Y5
619 KANZ	15	0836	0838	0845	N21	W16	.369	15589	14.2	9	-F		C				Y5
GRP69620	15	0856+7	0900+3	0909	N21	W12	.327	15589	14.5	13	-F						U
TEHR	15	0856E	0900	0906	N21	W09	.300	15589	14.7	10D	-N	1	C		127		U U
KANZ	15	0903	0903	0912	N21	W16	.369	15589	14.2	9	-F		C				
621 KANZ	15	0912	0915	0922	S16	W90	1.000	15582	8.6	10	-F		C				Y5
622 KANZ	15	0944	0949	1002	S19	W90	1.001	15582	8.7	18	-B		C				Y5
GRP69623	15	1010+5	1017	1031	S19	E04	.426	15591	15.7	21	-F						E
KHAR	15	1010E		1040D	S20	E05	.444	15591	15.8	30D	-F		P	1016	140	1.8	E
KANZ	15	1015	1017	1022	S18	E04	.410	15591	15.7	7	-F		C				
GRP69624	15	1010+5	1017+2	1031	S21	E23	.575	15591	17.1	21	-N						H
KHAR	15	1010E	1017	1040D	S23	E21	.580	15591	17.0	30D	1F		P	1016	175	2.2	EH
TEHR	15	1015	1019	1022	S19	E25	.574	15591	17.3	7	-B	1	C		64		FDE
GRP69625	15	1108	1114+6 1130+5	1147	S22	E20	.560	15591	17.0	39	1N						HJKO
ABST	15	1108	1114	1120	S23	E20	.572	15591	17.0	12	1N		C	1114	174	2.2	DJ
KHAR	15	1117E	1120	1206D	S23	E19	.564	15591	16.9	49D	1F		P	1127	210	2.6	EHKO
LVOV	15	1120E	1135	1205	S22	E21	.569	15591	17.0	45D	1N		C	1135	170	2.2	K
TEHR	15	1125E	1130	1137	S17	E25	.555	15591	17.4	12D	-B	1	C		127		FDE
KANZ	15	1132	1132	1140	S21	E19	.541	15591	16.9	8	-F		C				
GRP69626	15	1605+3	1608+0	1630	S20	W26	.593	15587	13.7	25	-N				130	1.6	E
HUAN	15	1605	1608	1635	S22	W27	.622	15587	13.6	30	-N	2	C	1608	140	1.8	E
HOLL	15	1608	1608	1624	S19	W25	.574	15587	13.8	16	-B	3	C		121		
GRP69627	15	1831+0	1833+1	1908	S20	W32	.653	15587	13.4	37	1B				350	4.6	FU
RAMY	15	1831E	1834	1910D	S20	W33	.663	15587	13.3	39D	1B	3	C		250		F
HOLL	15	1831	1833	1859	S22	W27	.622	15587	13.7	28	1N	3	C		291		U F
PALE	15	1831	1833	1834D	S20	W27	.603	15587	13.7	3D	2B	3	V		487		
PALE	15	1831	1833	1905	S20	W35	.683	15587	13.1	34	1B	3	C		390		U F
HUAN	15	1901E		1912	S20	W36	.693	15587	13.1	11D	-F	1	P				E

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	OCT																	
628 HUAN	15	1930	1934	1939	N29	E63	.896	15598	20.5	9	-F	1	C					Y5
629 HOLL	15	2024	2025	2030	N16	W50	.766	15583	12.1	6	-N	3	C		24		F	Y5
630 HOLL	15	2052	2054	2104	N33	E61	.888	15598	20.4	12	-B	3	C		27		F	Y5
631 HOLL	15	2059	2059	2105	N16	W51	.777	15583	12.0	6	-N	3	C		19		F	Y5
GRP69632	16	0027+6	0044+1	0109	N28	E61	.881	15598	20.6	42	2N				230	5.2	EHJ	
MITK	16	0027	0045	0126	N29	E62	.889	15598	20.7	59	1B		C	0045	160	3.3	E	
VORO	16	0033	0044	0103	N28	E60	.874	15598	20.5	30	1N		C	0044	188		EJH	
CULG	16	0034E	0044	0115	N27	E60	.872	15598	20.5	410	2N		C	0044	280	5.6		
MANI	16	0043E	0044	0050	N30	E64	.904	15598	20.8	70	2N	3	V		300	6.0		
633 CULG	16	0134E	0135	0150	S19	W63	.919	15599	11.3	160	-F		P	0135	40	1.0		Y5
634 CULG	16	0218	0220D	0220D	N27	E60	.872	15598	20.6	20	-N		P	0219	90	1.9		Y5
635 VORO	16	0228		0235	N29	E58	.860	15598	20.5	7	?F		C	0232	179		EJ	Y5
	IMP.1 NO MITK1																	
636 VORO	16	0256	0257	0259	N29	E55	.836	15598	20.2	3	-F		C	0257	81			Y5
637 VORO	16	0332	0332	0336	N28	E58	.858	15598	20.5	4	?N		C	0332	269		EJ	Y5
	IMP.1 NO MITK1																	
638 VORO	16	0348	0352	0357	S22	W33	.677	15587	13.7	9	?F		C	0354	269	3.7	E	Y5
	IMP.1 NO MITK1																	
639 CULG	16	0458	0506	0558	S22	W38	.725	15587	13.4	60	-N		C	0506	70	1.0	F	Y5
640 ABST	16	0622	0624	0636	S23	E02	.483	15591	16.4	14	-F		C	0624	96	1.1	D	Y5
GRP69641	16	0737+3	0741+4	0751	S21	E04	.455	15591	16.6	14	1N							
ISTA	16	0737E		0742	S22	E04	.471	15591	16.6	50	2N						F	
KANZ	16	0738	0741	0753	S21	E03	.454	15591	16.5	15	-B		C					
ABST	16	0739	0741	0752	S24	E04	.501	15591	16.6	13	1N		C	0741	227	2.7	E	
TEHR	16	0740E	0745	0749	S20	E09	.458	15591	17.0	90	-B	1	C		95		FDE	
BUCA	16	0740	0741	0751	S21	E02	.452	15591	16.5	11	-N		C	0741	171	2.0		
GRP69642	16	0804+0	0806+3	0812	S19	W34	.665	15587	13.8	8	-N				70	.9	D	
KANZ	16	0804	0808	0812	S19	W35	.675	15587	13.7	8	-N		C					
ABST	16	0804	0806	0811	S20	W37	.702	15587	13.6	7	-N		C	0806	79	1.1	D	
TEHR	16	0807E	0809	0811	S18	W32	.637	15587	13.9	40	-B	1	C		65		FDE	
ISTA	16	0808E		0813	S20	W34	.672	15587	13.8	50	-N						D	
GRP69643	16	0847+1	0848+1	0858	S15	W30	.592	15587	14.1	11	-F						D	
ABST	16	0847	0849	0856	S15	W30	.592	15587	14.1	9	-F		C	0849	52	.7	D	
KANZ	16	0848	0848	0859	S15	W31	.603	15587	14.0	11	-F		C					
GRP69644	16	0941+5	0950+0	1000	N27	E56	.841	15598	20.6	19	-N							
TEHR	16	0941	0950	0956	N26	E58	.855	15598	20.8	15	-B	1	C		95		FDE	
KANZ	16	0946	0950	1004	N29	E54	.828	15598	20.5	18	-N		C					
645 KANZ	16	1035	1035	1048	N26	W24	.508	15589	14.6	13	-N		C				LH	Y5
646 KANZ	16	1310	1310	1318	S21	E07	.464	15591	17.1	8	-F		C				D	Y5
647 KANZ	16	1314	1409	1429	S15	W56	.859	15587	12.4	75	?N		C				U	Y5
	IMP.1 NO HUAN1																	
648 KANZ	16	1338	1405	1421	S07	W62	.892		11.9	43	?F		C					Y5
	IMP.1 NO HUAN1																	
649 KANZ	16	1429	1433	1445	S19	W69	.953	15599	11.4	16	-F		C					Y5
GRP69650	16	1535+3	1536+3	1544	N29	E55	.836	15598	20.8	9	-N				40	.8	D	
MCMA	16	1535	1536	1541D	N28	E55	.834	15598	20.8	60	-N		C	1536	50	.9	D	
HUAN	16	1535		1545	N29	E55	.836	15598	20.8	10	-F	1	C	1535	30	.5		
HOLL	16	1538	1539	1542	N33	E51	.814	15598	20.5	4	-N	3	C		27			

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
	OCT																
GRP69651	16	1645+5	1652+1 1741+0	1814	S20	W38	.712	15587	13.8	89	1B				270	3.8	FHU
MCMA	16	1645E	1652	1734D	S18	W36	.679	15587	14.0	49D	-N		C	1652	80	1.1	EH
RAMY	16	1650E	1653	1715	S20	W34	.672	15587	14.2	25D	-B	3	C		50		F H
HOLL	16	1650	1741	1817	S22	W40	.744	15587	13.7	87	1B	3	C		318		U F
PALE	16	1704	1706	1718	S20	W39	.722	15587	13.8	14	-N	3	C		59		DE
PALE	16	1734	1741	1813	S21	W40	.738	15587	13.7	39	1B	3	C		229		U F
MCMA	16	1751E		1815D	S18	W37	.689	15587	14.0	24D	1B		C	1751	150	2.1	E
GRP69652	16	1942+1	1944+0	1952	S22	W44	.780	15587	13.5	10	-B				100	1.6	U
HUAN	16	1942	1944	1951	S23	W48	.819	15587	13.2	9	1N	2	C	1944	130	2.3	E
HOLL	16	1943	1944	1953	S22	W40	.744	15587	13.8	10	-B	3	C		77		U F
	16	2024	2028	NO FLARE PATROL													
	16	2113	2141	NO FLARE PATROL													
GRP69653	16	2142	2145+0	2159	N32	E47	.777	15598	20.4	17	1B						U
HOLL	16	2142	2145	2159	N33	E48	.790	15598	20.5	17	1B	3	C		369		U F
PALE	16	2145E	2145U	2158	N31	E46	.765	15598	20.4	13D	1B	3	C		337		FDE
GRP69654	16	2332+2	2335+6	0004	N30	E47	.770	15598	20.5	32	-N				60	1.0	J
CULG	16	2332	2337	0007	N28	E50	.791	15598	20.7	35	-N		C	2337	40	.6	
HOLL	16	2333	2335	0001	N36	E47	.794	15598	20.5	28	-B	3	C		57		
VORO	16	2334	2335	2345	N30	E48	.779	15598	20.6	11	-B		C	2335	45	.7	J
PALE	16	2334	2341	0006D	N31	E47	.774	15598	20.5	32D	-N	2	C		87		FDE
GRP69655	17	0006>9	0018+6	0025	S18	W42	.759	15587	13.9	19	-N				70	1.0	J
CULG	17	0006	0024	0101	S17	W42	.753	15587	13.9	55	-N		C	0024	80	1.1	F
VORO	17	0017	0018	0022	S18	W40	.740	15587	14.0	5	-B		C	0018	72	1.0	J
PALE	17	0022	0022	0025	S21	W43	.784	15587	13.8	3	-N	2	C		22		DE
656 CULG	17	0123E	0124	0136	S20	W02	.482	15591	16.9	13D	-F		P	0124	60	.7		Y5
GRP69657	17	0328>9	0344+0	0404	S17	W43	.763	15587	13.9	36	-N				130	1.9	J
CULG	17	0328	0344	0407D	S17	W44	.772	15587	13.8	39D	-N		C	0344	100	1.4	
VORO	17	0343	0344	0401	S18	W42	.759	15587	14.0	18	1N		C	0348	161	2.4	J
658 CULG	17	0504	0512	0527	S18	W55	.870	15587	13.1	23	-F		C	0512	70	1.4		Y5
GRP69659	17	0656E		0725D	S20	W42	.770	15587	14.1	29	-N						
ISTA	17	0656E		0715D	S21	W42	.776	15587	14.1	19D	-N						F
TEHR	17	0705E	0705U	0725D	S20	W40	.752	15587	14.3	20D	-B	1	C		95		DE
ISTA	17	0710E		0722D	S20	W45	.796	15587	13.9	12D	-N						F
660 KHAR	17	1055E		1106D	N24	E90	.998	15610	24.2	11D	-F		P	1058			DH	Y5
661 KHAR	17	1102	1108	1122D	S16	W52	.840	15587	13.6	20D	?F		P	1108	150	2.5	E	Y5
	IMP+1	NO	CATA1	LVOV1	ABST1												
662 KHAR	17	1118E	1120	1124D	N34	E39	.692	15598	20.4	6D	-F		P	1121	45	.7	E	Y5
GRP69663	17	1155+1	1156+2	1203	N33	E41	.706	15598	20.6	8	-F				35	.5	E
KHAR	17	1155E	1158	1203D	N34	E39	.692	15598	20.4	8D	-F		P	1158	50	.7	E
HTPR	17	1156	1156	1203	N32	E44	.730	15598	20.8	7	-F		C	1156	20	.3	
664 MCMA	17	1321	1330	1402	S18	W48	.813	15587	14.0	41	-N		C	1330	80	1.3	E	Y5
665 RAMY	17	1352E	1355	1403	N31	E61	.872		22.2	11D	-B	3	C		32		F	Y5
666 MCMA	17	1413	1420	1445	N30	E42	.702	15598	20.7	32	-N		C	1420	30	.4	D	Y5
GRP69667	17	1740E	1740+4	1751	S18	W51	.839	15587	13.9	11	-N				35	.6	D
MCMA	17	1740E	1740	1754	S18	W52	.847	15587	13.8	14D	-N		C	1740	50	1.0	D
RAMY	17	1741E	1744	1748	S18	W50	.830	15587	14.0	7D	-B	3	C		24		
668 RAMY	17	1751E	1756	1802	N13	W11	.201	15600	16.9	11D	-N	3	C		20			Y5
GRP69669	17	1902>9	1925	1941D	S18	W48	.813	15587	14.2	39	-F						E
MCMA	17	1902	1925	1941D	S17	W49	.818	15587	14.1	39D	-F		C	1925	50	.9	E
HUAN	17	1913		1933D	S19	W48	.818	15587	14.2	20D	-F	1	P				
670 HUAN	17	1922		1925	N27	E90	.998	15610	24.6	3	-F	1	C					Y5
671 HOLL	17	2035	2040	2044	N20	W46	.717	15589	14.4	9	-N	3	C		21			Y5
672 HOLL	17	2138	2139	2144	N20	E28	.489	15597	20.0	6	-N	3	C		46		U	Y5

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		COND	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	OCT																	
673 HOLL	17	2211	2221	2241	S22	W55	.883	15587	13.8	30	-B	3	C		43		DE	Y5
674 CULG	17	2310	2323	2330	N24	E90	.998	15610	24.7	20	-F		C	2323	20			Y5
	17	2320	2322	NO FLARE PATROL														
	17	0449	0457	NO FLARE PATROL														
675 PALE	17	2334	2353	0006D	N31	E47	.755		21.5	32D	-F	2	C		44		FDE	Y5
GRP69676	18	0000+2	0004+1	0048	S19	W55	.862	15587	13.9	48	-B				90	1.7	F	
CULG	18	0000	0005	0048	S16	W55	.853	15587	13.9	48	-B		C	0005	100	1.8		
HOLL	18	0002	0004	0012D	S22	W56	.878	15587	13.8	10D	-B	2	C		82		F	
677 CULG	18	0105	0109	0113	S29	E90	1.001		24.8	8	-F		C	0109	20			Y5
GRP69678	18	0113+1	0118+0	0124	S23	W81	.994	15587	12.0	11	1F				110			
CULG	18	0113	0118	0125	S27	W83	.998	15587	11.8	12	1N		C	0118	130			
MITK	18	0114	0118	0123	S19	W80	.991	15587	12.1	9	1F		C	0118	100			
679 CULG	18	0432	0442	0457	S22	W52	.847	15587	14.3	25	-F		C	0442	80	1.5		Y5
680 KHAR	18	0850E		0905D	N23	E86	.995	15610	24.8	15D	-F		P	0857	60		DH	Y5
681 KHAR	18	0913E	0917	0920D	S24	W70	.963	15587	13.1	7D	-F		P	0917	65		D	Y5
682 KHAR	18	0927E		0933D	N24	W52	.800	15589	14.5	6D	-F		P	0927	55	1.0	DT	Y5
683 KHAR	18	0950E		1003D	N24	W52	.800	15589	14.5	13D	-F		P	0950	60	1.0	DT	Y5
684 KHAR	18	1018E	1021	1033D	N24	W52	.800	15589	14.5	15D	-N		P	1020	100	1.7	DT	Y5
685 KHAR	18	1043E		1047D	N23	E86	.995	15610	24.9	4D	-F		P	1043	45		D	Y5
686 KHAR	18	1050E	1053	1130D	N24	W52	.800	15589	14.6	40D	-F		P	1053	80	1.4	DT	Y5
	18	1305	1352	NO FLARE PATROL														
	18	0449	0455	NO FLARE PATROL														
	18	0716	0720	NO FLARE PATROL														
GRP69687	18	1716+3	1720+0	1735	N31	E24	.558	15598	20.5	19	-N				60	.7	E	
RAMY	18	1716	1720	1739	N31	E25	.567	15598	20.6	23	-B	3	C		64			
MCMA	18	1717E		1735D	N29	E24	.538	15598	20.5	18D	-N		C	1720	60	.7	E	
HOLL	18	1719	1720	1731	N31	E23	.549	15598	20.4	12	-N	3	C		23			
688 CULG	18	2051	2055	2112	N23	E27	.519		20.9	21	-F		C	2055	120	1.5		Y5
689 PALE	18	2141	2148	2349	N31	E22	.540	15598	20.6	128	-N	3	C		85		F	Y5
GRP69690	18	2141>9	2203+1	2235D	S29	E30	.708	15604	21.2	54	-B						U	
PALE	18	2141	2204	0039D	S28	E32	.715	15604	21.3	178D	1B	*	C		297		U	
CULG	18	2154	2203	2235	S30	E29	.710	15604	21.1	41	-N	*	P	2203	80	1.2		
691 PALE	18	2146	2146	2154	S21	W25	.591	15591	17.0	8	-B	3	C		29		DE	Y5
692 PALE	18	2222	2247	2340	S21	W29	.629	15591	16.8	78	-B	3	C		49		DE	Y5
693 CULG	18	2246	2248	2258	S28	E67	.955		24.0	12	-F		C	2248	30			Y5
694 VORO	19	0005	0007	0011	N24	E74	.957	15610	24.6	6	-F		C	0007	63		E	Y5
695 VORO	19	0042	0043	0046	N22	W58	.851	15589	14.7	4	-N		C	0043	27	.3	J	Y5
696 VORO	19	0057	0059	0106	N28	E19	.481	15598	20.5	9	-N		C	0102	72	.8	J	Y5
GRP69697	19	0104+7	0113+5	0130	S21	W32	.658	15591	16.6	26	-N							
PALE	19	0104	0113	0132	S21	W30	.638	15591	16.8	28	-B	3	C		58		DE	
CULG	19	0111	0118	0128	S21	W34	.678	15591	16.5	17	-N		C	0118	20	.3	T	
GRP69698	19	0119>9	0135+0	0143	N21	W60	.866	15589	14.6	24	-F				50	1.0		
CULG	19	0119	0135	0145	N23	W59	.860	15589	14.6	26	-F	*	C	0135	60	1.1		
PALE	19	0133	0135	0140	N19	W61	.873	15589	14.5	7	-N	*	C		35		DE	
699 CULG	19	0120	0131	0149	S17	W69	.950	15587	13.9	29	-F		C	0131	30			Y5
700 CULG	19	0157	0200	0202	S21	W34	.678	15591	16.5	5	-N		C	0200	30	.4	T	Y5
701 CULG	19	0222	0224	0250	S21	W34	.678	15591	16.5	28	-F		C	0224	50	.6	KT	Y5

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS		MEASUREMENTS			REMARKS	
					APPROX		CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY			COND	TYPE	TIME	MEAS. AREA	CORR AREA		
	DATE OCT	START	MAX. PHASE	END	LAT.	MER. DIST.				MIN.				UT	Mill. of Disk	Sq. Deg.		
702 CULG	19	0237	0241	0247	N23	W59	.860	15589	14.7	10	-F		C	0241	20	.4		Y5
703 CULG	19	0406	0409	0439	N25	E77	.970	15610	24.9	33	2N		C	0409	250		V	Y5
704 CULG	19	0418E	0419	0428	S21	W34	.678	15591	16.6	10D	-N		P	0419	60	.8	T	Y5
705 CULG	19	0454	0501	0510	N23	W62	.884	15589	14.6	16	-N		C	0501	70	1.4		Y5
706 ABST	19	0549	0551	0553	N20	W68	.923	15589	14.1	4	-F		C	0551	87		DJZ	Y5
707 CULG	19	0552	0555	0600	N28	E60	.874		23.7	8	-F		C	0555	50	1.0		Y5
708 CULG	19	0632	0638	0650	S21	W34	.678	15591	16.7	18	-F		C	0638	60	.8	T	Y5
GRP69709	19	0705+6	0712+3	0731	N27	E74	.957	15610	24.8	26	-N				45		D	
BUCA	19	0705		0735	N28	E74	.958	15610	24.8	30	-F		C	0715	32		D	
CULG	19	0705	0715	0733	N26	E75	.962	15610	24.9	28	-N		P	0715	30			
ABST	19	0709	0715	0728	N28	E83	.988	15610	25.5	19	1N		C	0715	87		D	
CULG	19	0711	0712	0721	N24	E62	.885	15610	23.9	10	-N		C	0712	60	.9		
GRP69710	19	0747+3	0751+1	0805	N28	E74	.958	15610	24.9	18	1N				130			
TEHR	19	0747	0751	0811	N29	E65	.910	15610	24.2	24	1B	1	C		159		F	
ABST	19	0748	0752	0805	N28	E83	.988	15610	25.6	17	1N		C	0752	105		D	
BUCA	19	0750	0751	0803	N28	E74	.958	15610	24.9	13	1N		C	0751	107			
GRP69711	19	1025+0	1030	1039	S20	W37	.700	15591	16.7	14	-F						D	
KHAR	19	1025E		1042D	S19	W38	.704	15591	16.6	17D	-F		V	1030			D	
HTPR	19	1025	1030	1035	S22	W37	.714	15591	16.7	10	-F		C	1030	20	.2		
712 HTPR	19	1035	1038	1043	N19	W65	.903	15589	14.6	8	-F		C	1038	20	.4		Y5
713 RAMY	19	1113	1113	1117	N27	E65	.908	15610	24.3	4	-N	2	C		19			Y5
GRP69714	19	1148+1	1153+1	1214	N27	E70	.938	15610	24.7	26	-N						F	
HTPR	19	1148	1153	1203	N27	E75	.962	15610	25.1	15	-N		C	1153	90			
RAMY	19	1149	1154	1225	N27	E65	.908	15610	24.4	36	-B	3	C		87		F	
715 RAMY	19	1204	1211	1225	N20	W67	.917	15589	14.5	21	-B	3	C		21			Y5
716 RAMY	19	1308	1321	1440	S22	W36	.704	15591	16.8	92	-B	3	C		127			Y5
717 RAMY	19	1407	1438	1519	N26	E65	.907	15610	24.5	72	-B	3	C		65			Y5
GRP69718	19	1606+0	1608+2	1632	N27	E68	.926	15610	24.8	26	1B				110			
HOLL	19	1606	1610	1625	N27	E68	.926	15610	24.8	19	1B	3	C		120		DE	
RAMY	19	1606	1608	1632	N26	E65	.907	15610	24.5	26	1B	3	C		112		DE	
HUAN	19	1633E		1637D	N28	E72	.948	15610	25.1	4D	-F	1	P					
719 PALE	19	1708	1709	1800	S21	W39	.726	15591	16.8	52	-B	3	C		57		DE	Y5
720 PALE	19	1755	1756	1807	N28	E65	.909	15610	24.6	12	-B	3	C		25		DE	Y5
721 PALE	19	1958E	2011U	2021	S21	W41	.746	15591	16.8	23D	-N	3	C		64		DE	Y5
722 CULG	19	2032	2034	2046	S20	W43	.759	15591	16.6	14	-F		C	2034	40	.6		Y5
723 CULG	19	2137	2150	2210	S17	W90	1.000	15587	13.2	33	-F		C	2150	30			Y5
724 PALE	19	2211E	2212	2243D	S21	W42	.755	15591	16.8	32D	?B	2	C		193		FDE	Y5
	IMP+1 NO HOLL1			CULG1														
GRP69725	19	2355+2	2358	0015D	S30	E16	.626	15604	21.2	20	-N						EKL	
			2408															
CULG	19	2355	2408	0048	S31	E13	.624	15604	21.0	53	-N		C	2408	100	1.3		
VORO	19	2357	2358	0015	S29	E20	.637	15604	21.5	18	-N		C	2358	116	1.5	EKL	
726 CULG	20	0027	0050	0105	N28	W38	.675	15590	17.2	38	-F		C	0050	10	.1		Y5
GRP69727	20	0120+1	0136	0140D	S20	W42	.749	15591	16.9	20	1N				140	2.1	J	
VORO	20	0120E		0140	S26	W42	.782	15591	16.9	20D	1F		P	0131	188	2.9	E	
CULG	20	0121	0136	0210	S20	W48	.805	15591	16.5	49	1N		C	0136	140	2.2	J	
MANI	20	0128E	0128U	0135D	S20	W42	.749	15591	16.9	7D	-N	3	V		100	1.8	F	
GRP69728	20	0150+1	0201+2	0229	S30	E15	.620	15604	21.2	39	-B				140	1.8	J	
CULG	20	0150	0202	0237	S33	E14	.652	15604	21.1	47	1B	*	C	0202	160	2.1		
VORO	20	0151	0203	0220	S30	E21	.654	15604	21.7	29	-N	*	C	0203	143	1.9	EJ	
PALE	20	0201	0201	0209D	S28	E15	.595	15604	21.2	8D	-B	*	C		108		FDE	

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONC	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
	OCT																
GRP69729	20	0152>9	0158+5	0212	N31	E07	.444	15598	20.6	20	-N		C				J
CULG	20	0152	0202	0231	N28	E07	.398	15598	20.6	39	-N		C	0202	60	.7	F
VORO	20	0156	0158	0212	N31	E07	.444	15598	20.6	16	-F		C	0158	125	1.4	EJ
PALE	20	0203	0203	0207	N32	E07	.459	15598	20.6	4	-N	3	C		22		FDE
730 CULG	20	0207	0210	0221	N26	E63	.894	15610	24.8	14	-F		C	0210	30	.7	Y5
GRP69731	20	0310	0312+4	0324	N28	E61	.882	15610	24.7	14	-F				70	1.6	DH
VORO	20	0310	0312	0315	N29	E66	.916	15610	25.1	5	-F		C	0312	63		DH
PALE	20	0315E	0316U	0333D	N28	E57	.852	15610	24.4	18D	-N	3	C		92		DE
732 CULG	20	0335	033?	0352	N32	E11	.476	15598	21.0	17	-F		C	0339	20	.2	Y5
GRP69733	20	0339+0	0341+5	0404	S23	W45	.792	15591	16.8	25	-F						EJ
VORO	20	0339	0341	0356	S26	W45	.807	15591	16.8	17	1F		C	0341	134	2.2	EJ
CULG	20	0339	0346	0411	S20	W46	.787	15591	16.7	32	-F		C	0346	50	.8	
734 TEHR	20	0719	0723	0733	S23	W41	.756	15591	17.2	14	-B	2	C		127		Y5
735 HTPR	20	1041	1046	1130	N30	E00	.415	15598	20.4	49	1N		C	1046	450	5.0	EK Y5
736 HTPR	20	1108	1119	1130	N35	W40	.734	15592	17.5	22	-F		C	1119	30	.5	F Y5
	20	1200	1202	NO FLARE PATROL													
737 HTPR	20	1202E		1245D	N30	W01	.415	15598	20.4	43D	-F		C	1225	50	.6	Y5
738 HTPR	20	1231	1235	1245	S22	W48	.813	15591	16.9	14	-F		C	1235	20	.3	Y5
739 HTPR	20	1327	1330	1341	S24	W43	.780	15591	17.3	14	-F		C	1330	20	.3	Y5
GRP69740	20	1555+1	1557+1	1632	S23	W53	.858	15591	16.7	37	-N				60	1.1	E
MCMA	20	1555	1557	1619	S22	W53	.854	15591	16.7	24	-N		C	1557	60	1.2	E
HUAN	20	1556	1558	1645	S24	W54	.869	15591	16.6	49	-N	1	C	1558	70	1.3	
741 HUAN	20	1616	1618	1619	N29	E55	.838	15610	24.8	3	-F	2	C	1618	20	.3	D Y5
GRP69742	20	1638>9	1640 1706	1722	S21	W55	.867	15591	16.6	44	-B						EK
MCMA	20	1638	1706	1722	S20	W55	.864	15591	16.6	44	-B	*	C	1706			
MCMA	20	1638	1640	1722	S20	W55	.864	15591	16.6	44	-B	*	C	1640	50	1.1	EK
HUAN	20	1700		1706D	S22	W55	.870	15591	16.6	6D	-N	*	P	1705	35	.6	
743 MCMA	20	1745	1749	1757	S20	W55	.864	15591	16.6	12	-B		C	1749	50	1.1	E Y5
GRP69744	20	1754+0	1756+1	1806	S30	E07	.590	15604	21.3	12	-N				40	.5	E
PALE	20	1754E	1757	1804	S28	E07	.562	15604	21.3	10D	-N	3	C		31		DE
MCMA	20	1754	1756	1808	S31	E06	.601	15604	21.2	14	-N		C	1756	40	.5	E
HUAN	20	1756E		1806D	S30	E07	.590	15604	21.3	10D	-F	1	P	1800	35	.4	E
745 HOLL	20	1810	1813	1819	S22	W51	.838	15591	16.9	9	-N	3	C		51		Y5
746 PALE	20	1840	1843	1847	S23	W54	.865	15591	16.7	7	-N	3	C		31		DE Y5
747 PALE	20 IMP.1	2010 NO	2014 HOLL1	2050D	S23	W55	.873	15591	16.7	40D	?B	3	C		151		DE F Y5
748 PALE	20	2020	2023U	2049D	N28	E48	.774	15610	24.4	29D	-B	3	C		79		DE Y5
	20	2052	2109	NO FLARE PATROL													
GRP69749	20	2138	2144 2154	2159	S22	W53	.854	15591	16.9	21	1B						E
HOLL	20	2138	2144	2159	S22	W53	.854	15591	16.9	21	1B	3	C		185		DE
HOLL	20	2138	2154	2159	S22	W53	.854	15591	16.9	21	-N	3	C		18		DE
	20	2338	2340	NO FLARE PATROL													
	20	2344	2358	NO FLARE PATROL													
	20	0800	0845	NO FLARE PATROL													
	20	0852	0902	NO FLARE PATROL													
	20	0908	0912	NO FLARE PATROL													
750 CULG	21 IMP.1	0040E NO	0055 MITK1	0102D	N37	W37	.722	15592	18.3	22D	?F		P	0055	160	2.2	Y5
751 CULG	21	0049	0055	0101	S18	W59	.889	15591	16.6	12	-N		C	0055	10	.2	Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		CONF	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
	OCT																
752 VORO	21	0158	0202	0245	S22	W60	.905	15591	16.6	47	?F		C	0202	125	2.7	EJ Y5
	IMP.1 NO		MITK1														
GRP69753	21	0247		0330	N28	E48	.775	15610	24.7	43	-F						E
MITK	21	0247		0322D	N28	E50	.793	15610	24.9	35D	-F		C	0253			E
VORO	21	0259E		0330	N28	E48	.775	15610	24.7	31D	1F		C	0259	197	3.1	E
MANI	21	0300E	0300U	0314D	N27	E45	.742	15610	24.5	14D	-N	3	V		100	1.5	F
GRP69754	21	0554	0558	0631	S21	W62	.915	15591	16.6	37	1N				150	3.6	EJK
			0627														
ABST	21	0554	0558	0646	S21	W61	.909	15591	16.7	52	1N		C	0558	201	4.6	FJK
MITK	21	0558E		0616	S21	W62	.915	15591	16.6	18D	1N		C	0558	100	2.4	E
MITK	21	0623	0627	0631D	S20	W63	.920	15591	16.5	8D	1N		P	0627	100	2.4	E
GRP69755	21	0709+1	0711+3	0727	N29	W08	.419	15598	20.7	18	-F				60	.7	DJ
HTPR	21	0709	0711	0725	N30	W08	.434	15598	20.7	16	-F		C	0711	40	.4	
ABST	21	0710	0714	0728	N29	W09	.424	15598	20.6	18	-F		C	0714	87	1.0	DJ
756 HTPR	21	0732	0734	0737	N30	W10	.443	15598	20.6	5	-F		C	0734	40	.4	Y5
757 HTPR	21	0735	0741	0746	S32	W01	.608	15604	21.2	11	-F		C	0741	40	.5	E Y5
758 ABST	21	1041	1045	1052	S20	W62	.913	15591	16.8	11	-N		C	1045	87	2.0	DJ Y5
759 RAMY	21	1318	1336	1341	N15	E10	.237	15613	22.3	23	-N	3	C		20		Y5
GRP69760	21	1335+2	1341+1	1420	N32	W08	.464	15598	21.0	45	-N				25	.3	D
			1348														
KANZ	21	1335	1348	1406D	N32	W08	.464	15598	21.0	31D	-N		C				
MCMA	21	1337	1341	1430D	N32	W08	.464	15598	21.0	53D	-N		C	1341	30	.3	D
HTPR	21	1337	1342	1409	N33	W09	.482	15598	20.9	32	-F		C	1342	20	.2	
GRP69761	21	1356+1	1358+0	1423	S23	W66	.942	15591	16.6	27	-N						E
RAMY	21	1324	1358	1500	S23	W67	.947	15591	16.5	96	1B	*	C		194		FDE
HTPR	21	1356	1358	1410	S23	W66	.942	15591	16.6	14	-F	*	C	1358	30	.7	E
KANZ	21	1357		1406D	S21	W65	.933	15591	16.7	9D	-N	*	C				
MCMA	21	1407E		1423D	S24	W70	.962	15591	16.3	16D	1N	*	C	1413	80	3.0	BE
GRP69762	21	1423+3	1429+3	1448	S32	W04	.610	15604	21.3	25	-N				45	.6	E
MCMA	21	1423E	1432	1453	S32	W05	.612	15604	21.2	30D	-N		C	1432	35	.4	E
HTPR	21	1426	1429	1442	S32	W03	.609	15604	21.4	16	-N		C	1429	50	.6	E
GRP69763	21	1551+2	1601+1	1712	N30	W12	.455	15598	20.8	81	1N				210	2.4	U
			1620														
MCMA	21	1551	1602	1725D	N32	W11	.477	15598	20.8	94D	1N		C	1602	175	2.1	EU
MCMA	21	1551	1620	1725D	N32	W11	.477	15598	20.8	94D	1N		C	1620	200	2.4	
RAMY	21	1553	1601	1659	N29	W13	.448	15598	20.7	66	1B	3	C		250		F
	21	1906	1926	NO FLARE PATROL													
	21	1947	1953	NO FLARE PATROL													
764 RAMY	21	2028E	2031	2038	N19	E90	1.000	15619	28.6	10D	-B	3	C				Y5
	21	2042	2229	NO FLARE PATROL													
	21	0417	0447	NO FLARE PATROL													
	21	0503	0538	NO FLARE PATROL													
765 VORO	21	2325	2328	2337	S22	W72	.968	15591	16.6	12	-N		C	2328	81		E Y5
GRP69766	21	2350+0	2357+2	0013	S25	W11	.534	15604	21.2	23	-F						
CULG	21	2350	2357	0001D	S25	W12	.539	15604	21.1	11D	-F		P	2357	40	.5	
MITK	21	2350	2359	0013	S26	W11	.547	15604	21.2	23	-F		C	2359			
767 VORO	22	0004	0006	0008	S21	W74	.975	15591	16.5	4	-N		C	0006	45		D Y5
768 VORO	22	0053	0053	0056	S21	W74	.975	15591	16.5	3	-N		C	0053	45		D Y5
769 VORO	22	0112	0116	0139	S21	W72	.967	15591	16.7	27	?F		C	0116	116		EJ Y5
	IMP.1 NO		MITK1														
770 VORO	22	0221	0223	0226	S21	W76	.981	15591	16.4	5	-N		C	0223	45		D Y5
GRP69771	22	0556+6	0604+2	0638	S23	E24	.599	15611	24.0	42	1B				190	2.4	HJ
MITK	22	0556	0604	0641	S23	E24	.599	15611	24.0	45	1B		C	0604	250	3.2	E
ABST	22	0558	0605	0630	S24	E24	.609	15611	24.0	32	1N		C	0605	174	2.2	FJ
TEHR	22	0602	0606	0638	S22	E20	.554	15611	23.8	36	-B	2	C		150		H

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE OCT	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
772 ABST	22	0644E	0645	0654	N14	W45	.709	15617	18.9	10D	-F		P	0645	87	1.2	D	Y5
773 ABST	22	0644E	0645	0650	N17	W32	.551	15597	19.9	6D	-F		P	0645	87	1.1	D	Y5
	22	1025	1226	NO FLARE PATROL														
	22	2210	2215	NO FLARE PATROL														
	22	0905	0915	NO FLARE PATROL														
	22	0945	1005	NO FLARE PATROL														
774 CULG	23	0102	0107	0128	N23	E25	.499	15610	24.9	26	-F		P	0107	50	.6		Y5
GRP69775	23	0201+1	0204+2	0216	N18	E78	.974	15619	28.9	15	-F						D	
CULG	23	0201	0204	0220	N18	E79	.978	15619	29.0	19	-F		C	0204	10			
VORO	23	0202	020E	0211	N19	E78	.974	15619	28.9	9	-F		C	0206	45		D	
776 MITK	23	0224	0225	0245	N24	E24	.496	15610	24.9	21	-N		C	0225			E	Y5
777 VORO	23	0246	0248	0252	N19	E78	.974	15619	29.0	6	-F		C	0248	36		D	Y5
GRP69778	23	0321+1	0324+3	0340	N23	E23	.476	15610	24.9	19	-N				110	1.3	E	
VORO	23	0321	0324	0340	N24	E23	.485	15610	24.9	19	-N		C	0324	143	1.6	E	
CULG	23	0322	0327	0329D	N22	E23	.467	15610	24.9	7D	-N		P	0327	90	1.0		
779 CULG	23	0446E	0446E	0513D	N24	E15	.401	15610	24.3	27D	-F		P	0446	60	.7		Y5
GRP69780	23	0848+2		0902	S16	E90	1.000	15620	30.1	14	-N						A	
KANZ	23	0848E		0856	S17	E90	1.000	15620	30.1	8D	-N		C					
ISTA	23	0850		0907D	S15	E90	1.000	15620	30.1	17D	1N						A	
	23	1015	1036	NO FLARE PATROL														
	23	1054	1138	NO FLARE PATROL														
	23	1209	1227	NO FLARE PATROL														
	23	1245	1254	NO FLARE PATROL														
	23	1400	1409	NO FLARE PATROL														
	23	1445	1800	NO FLARE PATROL														
	23	1805	1825	NO FLARE PATROL														
	23	1834	1840	NO FLARE PATROL														
	23	1847	1853	NO FLARE PATROL														
	23	1934	2108	NO FLARE PATROL														
	23	0411	0413	NO FLARE PATROL														
	23	0433	0446	NO FLARE PATROL														
	23	0451	0505	NO FLARE PATROL														
	23	0513	0518	NO FLARE PATROL														
	23	0626	0655	NO FLARE PATROL														
	23	0712	0732	NO FLARE PATROL														
	23	0742	0815	NO FLARE PATROL														
781 VORO	23	2336	2338	2346	N24	E11	.367	15610	24.8	10	-F		C	2338	81	.8	E	Y5
782 CULG	24	0232	0306	0329	N26	E07	.373	15610	24.6	57	-F		C	0306	30	.3	F	Y5
GRP69783	24	0649E	0649+1	0659	S18	E64	.922	15620	29.1	10	-F				50			
CULG	24	0649E	0649U	0659	S19	E64	.924	15620	29.1	10D	-N		P	0649	60		C	
MANI	24	0649E	0650	0653D	S17	E65	.927	15620	29.2	4D	-F	3	V		50	1.0		
784 KANZ	24	0819	0823	0831	N17	E54	.810	15619	28.4	12	-B		C				DL	Y5
785 KHAR	24	0933E		0940D	N29	W49	.788	15598	28.7	7D	-F		P	0937	50	.8	D	Y5
	24	1548	1557	NO FLARE PATROL														
	24	0347	0358	NO FLARE PATROL														
	24	0043	0059	NO FLARE PATROL														
786 MCMA	24	1650	1651	1707D	N23	E04	.313	15610	25.0	17D	-F		C	1651	40	.4	E	Y5
787 PALE	24	2016	2017	2025	N24	E02	.325	15610	25.0	9	-B	3	C		115		FDE	Y5
788 CULG	24	2108	2111	2122	S20	E79	.989	15620	30.8	14	-F		C	2111	40		L	Y5
789 CULG	24	2130	2156	2210	S22	E80	.992	15620	30.9	40	?F		C	215E	70			Y5
	IMP.1 NO # PALE1																	
790 CULG	24	2221	2229	2240	S20	E78	.986	15620	30.8	19	-F		C	2229	30			Y5
GRP69791	24	2254+0	2255+1	2307	S21	E56	.873	15620	29.2	13	-N				60	1.2	D	
CULG	24	2254	2256	2312	S22	E56	.876	15620	29.2	18	-B		C	2256	60	1.3		
VORO	24	2254	2255	2301	S20	E56	.870	15620	29.2	7	-N		C	225E	72	1.3	D	

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
					APPROX													
	DATE OCT	START	MAX. PHASE	END	LAT.	MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY	MIN.		CONF	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
GRP69792	24	2307+1	2309+2	2322	S20	E74	.974	15620	30.5	15	-F				30		D	
CULG	24	2307	2311	2326	S21	E77	.984	15620	30.7	19	-N		C	2311	30			
VORO	24	2308	2309	2318	S19	E72	.965	15620	30.4	10	-F		C	2309	27		D	
793 CULG	25	0031	0040	0047	S20	E75	.977	15620	30.6	16	-F		C	0040	30			Y5
794 CULG	25	0117	0123	0140	S18	E10	.424	15615	25.8	23	-F		C	0123	30	.3		Y5
GRP69795	25	0200+2	0235 0245	0318D	N28	W05	.397	15610	24.7	78	1N						FIJKLS	
CULG	25	0200	0245	0410	N28	W05	.397	15610	24.7	130	1N		C	0245	250	2.8	JSI	
VORO	25	0202	0235	0318	N28	E00	.390	15610	25.1	76	1N		C	0235	224	2.4	FJKL	
MANI	25	0206E	0206U	0218D	N28	W06	.401	15610	24.6	12D	-N	3	V		80	.9		
796 CULG	25	0342	0349	0405	S21	E65	.932	15620	30.0	23	-N		C	0349	50			Y5
797 CULG	25	0345	0355	0420	S30	E70	.968	15620	30.4	35	-F		C	0355	20			Y5
798 CULG	25	0625E	0638	0645	S20	E70	.957	15620	30.5	20D	-N		P	0638	30			Y5
799 CULG	25	0714E	0723	0734D	S28	W57	.899	15604	21.0	20D	-N		P	0723	50	1.1		Y5
GRP69800	25	0737+2	0739+2	0748	N22	W04	.298	15610	25.0	11	-N						E	
HTPR	25	0737	0739	0750	N22	W04	.298	15610	25.0	13	-F		C	0739	70	.7	E	
KANZ	25	0739	0741	0745	N23	W04	.315	15610	25.0	6	-B		C				E	
GRP69801	25	0844+3	0849+2	0855	S20	E51	.829	15620	29.2	11	-F							
HTPR	25	0844	0849	0855	S20	E51	.829	15620	29.2	11	-F		C	0849	50	.8		
KANZ	25	0847	0851	0855	S20	E51	.829	15620	29.2	8	-F		C					
GRP69802	25	0858+1	0901+2	0908	S21	E68	.949	15620	30.5	10	-N						E	
KANZ	25	0858	0901	0908	S21	E68	.949	15620	30.5	10	-N		C					
HTPR	25	0859	0903	0907	S21	E69	.953	15620	30.5	8	-N		C	0903	70		E	
803 HTPR	25	0920	0921	0932	S20	E50	.821	15620	29.1	12	-F		C	0921	20	.3		Y5
GRP69804	25	1046+1	1047+0	1051	N23	W06	.323	15610	25.0	5	-N				80	.8	E	
HTPR	25	1046	1047	1053	N23	W05	.318	15610	25.1	7	-N		C	1047	90	1.0	E	
MONT	25	1046	1047	1051	N24	W06	.339	15610	25.0	5	-N		C	1047	70			
KANZ	25	1047	1047	1051	N23	W06	.323	15610	25.0	4	-N		C					
GRP69805	25	1139+7	1146+6	1224	S16	E62	.905	15620	30.1	45	-N				70	1.6	E	
HTPR	25	1139	1146	1205	S18	E62	.909	15620	30.1	26	-F		C	1146	50	1.0	E	
KANZ	25	1140	1152	1224D	S16	E59	.883	15620	29.9	44D	-N		C					
TEHR	25	1146	1149	1227	S16	E70	.953	15620	30.7	41	-B	2	C		95			
GRP69806	25	1152+2	1157+3	1216	S12	E90	1.000	15631	2.2	24	1B							
KANZ	25	1152	1200	1216	S12	E90	1.000	15631	1.2	24	-B		C					
HTPR	25	1154	1159	1210	S14	E90	1.000	15631	1.2	16	-N		C	1159	120			
TEHR	25	1155E	1157U	1235	S10	E90	1.000	15631	1.2	40D	2B	2	C		318			
GRP69807	25	1212+0	1212+0	1215	N17	E39	.643	15619	28.4	3	-F						E	
HTPR	25	1212	1212	1214	N18	E39	.646	15619	28.4	2	-F		C	1212	20	.3	E	
KANZ	25	1212	1212	1216	N17	E40	.655	15619	28.5	4	-F		C					
	25	1601	1612	NO FLARE PATROL														
	25	1615	1848	NO FLARE PATROL														
	25	1853	1904	NO FLARE PATROL														
	25	1928	1936	NO FLARE PATROL														
	25	1952	2003	NO FLARE PATROL														
	25	2024	2028	NO FLARE PATROL														
808 CULG	25	2123	2244U	0410	N37	E43	.773		29.1	407	?N		C	2244	370	5.9	GU	Y5
	IMP-2 NO & PALE1																	
809 CULG	25	2158	2201	2206	N27	W29	.578		23.7	8	-N		C	2201	40	.5		Y5
GRP69810	25	2346+1	2349+1	0003	S27	W64	.937	15604	21.2	17	-N				60			
CULG	25	2346	2350	0010	S27	W67	.952	15604	21.0	24	-N		C	2350	60			
PALE	25	2347	2349	2355	S27	W62	.926	15604	21.3	8	-N	2	C		61		DE	
811 CULG	25	2357	2414	0040	N13	W50	.765	15613	22.2	43	-N		C	2414	50	.8		Y5
812 VORO	26	0056	0057	0101	S13	E80	.989	15631	1.0	5	-F		C	0057	27		HJ	Y5
813 VORO	26	0203	0204	0206	S18	E61	.902	15620	30.7	3	-F		C	0204	27	.5	D	Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX LNG. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
	OCT																
	26	1150	1155	NO FLARE PATROL													
	26	1200	1347	NO FLARE PATROL													
814 HTPR	26	1444	1446	1455	S18	E44	.756	15620	29.9	11	-F		C	1446	30	.4	Y5
	26	1531	1656	NO FLARE PATROL													
	26	1703	1756	NO FLARE PATROL													
	26	1800	1908	NO FLARE PATROL													
	26	1918	1954	NO FLARE PATROL													
815 PALE	26	1931E	1932U	2005D	S17	E48	.791	15620	30.4	34D	-B	3	C		71		DE Y5
	26	2006	2037	NO FLARE PATROL													
	26	2206	2211	NO FLARE PATROL													
	26	2344	2358	NO FLARE PATROL													
	26	0335	0515	NO FLARE PATROL													
816 ZURI	27	0855	0905	0905D	N27	W36	.654	15610	24.7	10D	-F		P	0905	70	1.0	Y5
817 HTPR	27	1011	1013	1021	N26	W37	.659	15610	24.6	10	-F		C	1013	30	.4	Y5
818 HTPR	27	1112	1114	1130	N26	W38	.669	15610	24.6	18	-F		C	1114	20	.3	Y5
819 ZURI	27	1117E	1133	1143	S15	E66	.929	15631	1.4	26D	-N		P	1133	40		Y5
820 HTPR	27	1222	1229	1250	N26	W38	.669	15610	24.7	28	-F		C	1229	20	.3	Y5
GRP69821	27	1414+1	1419+3	1431	N27	W40	.695	15610	24.6	17	-F						
KANZ	27	1414	1422	1425	N27	W42	.716	15610	24.4	11	-F		C				
ZURI	27	1415	1419	1437	N27	W39	.685	15610	24.7	22	-N		C	1419	160	2.2	
GRP69822	27	1718	1722	1742	N18	E17	.361	15619	29.0	24	-N				80	.9	E
MCMA	27	1718	1722	1743	N18	E18	.374	15619	29.1	25	-N		C	1722	80	1.0	E
HUAN	27	1724E		1724D	N17	E17	.352	15619	29.0		-N	1	P	1724	60	.6	E
PALE	27	1726E	1726U	1740	N19	E14	.336	15619	28.8	14D	-N	1	C		98		
	27	1945	2021	NO FLARE PATROL													
	27	0459	0505	NO FLARE PATROL													
	27	0506	0535	NO FLARE PATROL													
	27	0536	0605	NO FLARE PATROL													
823 PALE	27	2037	2038	2050D	N19	E12	.315	15619	28.8	13D	-B	2	C		186		FDE Y5
824 PALE	27	2112	2116	2117	N19	E12	.315	15619	28.8	5	-N	3	C		23		FDE Y5
GRP69825	27	2229+8	2232	2252	S18	E26	.565	15620	29.9	23	-B						J
PALE	27	2229	2232	2300	S19	E26	.574	15620	29.9	31	1B	3	C		216		DE F
VORO	27	2237		2244	S18	E26	.565	15620	29.9	7	-N		C	2237	90	1.0	J
826 VORO	27	2309	2314	2321	S15	E28	.561	15620	30.1	12	-N		C	2314	72	.8	J Y5
GRP69827	28	0056+2	0104+1	0117	N26	W48	.772	15610	24.4	21	1N				150	2.4	FJ
CULG	28	0056	0104	0116	N27	W47	.765	15610	24.5	20	1N		P	0104	180	2.7	F
VORO	28	0058	0105	0117	N26	W49	.781	15610	24.4	19	-N		C	0105	116	1.8	J
828 VORO	28	0130	0140	0202	N25	W50	.788	15610	24.3	32	-N		C	0140	81	1.3	J Y5
829 CULG	28	0413E	0417U	0417D	N18	E12	.304	15619	29.1	4D	-F		P	0417	60	.6	Y5
830 TEHR	28	0425	0430	0436	S15	W30	.584	15615	25.9	11	-B	4	C		64		FDE Y5
GRP69831	28	0525E		0542	N18	E10	.283	15619	29.0	17	-N				190	2.0	
TACH	28	0525E		0540	N19	E10	.296	15619	29.0	15D	1F		P	0528	230	2.4	E
TEHR	28	0528E	0528U	0543	N18	E10	.283	15619	29.0	15D	-B	4	C		159		FDE
GRP69832	28	0938+2	0940+3	0947	N18	E09	.274	15619	29.1	9	-N						
MONT	28	0938	0940	0946	N19	E08	.279	15619	29.0	8	-N		C	0940	80		E
TEHR	28	0940	0943	0947	N18	E10	.283	15619	29.2	7	-B	1	C		190		FDE
	28	1200	1223	NO FLARE PATROL													
	28	1310	1340	NO FLARE PATROL													
	28	1345	1407	NO FLARE PATROL													
833 KANZ	28	1407E		1411D	N18	E06	.250	15619	29.0	4D	-B		C				E Y5
	28	1411	1447	NO FLARE PATROL													
	28	1453	1456	NO FLARE PATROL													

Hα SOLAR FLARES

OCTOBER 1978

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONC	TYPE	TIME UT	MEAS. AREA Mlh. of Disk	CORR AREA Sq. Deg.	
	OCT																
	28	1540	1604	NO FLARE PATROL													
GRP69834	28	1557	1604	1655	N19	E02	.248	15619	28.8	58	?N						U
HOLL	28	1557	1604	1655	N20	E01	.263	15619	28.7	58	?B	3	C		612		U F
	IMP.2 IMP.S																
HUAN	28	1604E		1605D	N18	E04	.238	15619	29.0	1D	-N	2	P	1604	170	1.8	E
	28	1605	1645	NO FLARE PATROL													
	28	1659	1909	NO FLARE PATROL													
	28	2001	2050	NO FLARE PATROL													
835 HOLL	28	2011	2013	2024	N23	W58	.855	15610	24.5	13	-B	4	C		61		F Y5
	28	2101	2104	NO FLARE PATROL													
	28	0400	0413	NO FLARE PATROL													
	28	0417	0510	NO FLARE PATROL													
	28	0631	0705	NO FLARE PATROL													
	28	0710	0730	NO FLARE PATROL													
GRP69836	28	2318+2	2323+5	2351	N18	W01	.229	15619	28.9	33	-N				160	1.6	JK
HOLL	28	2318	2326	2351	N18	W04	.238	15619	28.7	33	-N	2	C		100		F
VORO	28	2319	2323	2348	N18	E00	.229	15619	29.0	29	1N		C	2323	287	3.0	EJK
PALE	28	2320	2328	2351	N18	E01	.229	15619	29.0	31	-B	3	C		165		DE
MANI	28	2333E	2333U	2347D	N19	W02	.248	15619	28.8	14D	-N	2	P		150	1.5	F
837 VORO	28	2355	2356	2358	S16	W45	.756	15615	25.6	3	-B		C	2356	81	1.2	D Y5
838 VORO	29	0004	0005	0008	S15	W44	.741	15615	25.7	4	-N		C	0005	72	1.0	DJ Y5
839 VORO	29	0018	0018	0020	N17	W06	.236	15619	28.6	2	-N		C	0018	27	.3	D Y5
840 VORO	29	0030	0032	0039	S17	W44	.750	15615	25.7	9	-N		C	0032	90	1.3	EJ Y5
841 VORO	29	0146	0148	0152	N17	W06	.236	15619	28.6	6	-N		C	0148	63	.6	D Y5
842 CULG	29	0359E	0408	0430	N27	W66	.917	15610	24.2	31D	-F		C	0408	70	1.6	Y5
	29	0433	0439	NO FLARE PATROL													I
843 KANZ	29	0906	0917	0930	N18	W90	1.000	15613	22.6	24	-N		C				Y5
844 KANZ	29	0910	0917	0928	S19	E08	.422	15620	30.0	18	-N		C				F Y5
GRP69845	29	1315+1	1325+2	1355	N21	W13	.352	15619	28.6	40	-N						F
ZURI	29	1315	1327	1411	N22	W11	.347	15619	28.7	56	-N		C	1327	90	1.0	
KANZ	29	1316	1327	1420	N20	W13	.340	15619	28.6	64	-N		C				F
RAMY	29	1323E	1325	1339	N21	W13	.352	15619	28.6	16D	-B	2	C		26		
GRP69846	29	1402+1	1405+2	1422	N21	W16	.383	15619	28.4	20	-N				70	.8	F
RAMY	29	1402	1405	1414	N21	W15	.372	15619	28.5	12	-B	3	C		68		F
ZURI	29	1403	1407	1429	N22	W17	.405	15619	28.3	26	-N		C	1407	80	.9	
GRP69847	29	1534+3	1539	1544	S10	E52	.807	15631	3.5	10	-F				20	.3	
HUAN	29	1534		1542D	S12	E53	.822	15631	2.6	8D	-F	1	P	1537	20	.3	D
RAMY	29	1537	1539	1544	S09	E52	.805	15631	2.6	7	-F	3	C		19		F
GRP69848	29	1624+3	1628+1	1648	S18	E02	.387	15620	29.8	24	-N				30	.3	
HUAN	29	1624	1629	1640	S19	E05	.410	15620	30.1	16	-N	1	C	1629	25	.3	D
RAMY	29	1624	1629	1701	S18	E01	.386	15620	29.8	37	-B	3	C		78		F
MCMA	29	1624	1628	1655	S20	E04	.423	15620	30.0	31	-N		C	1628	30	.3	D
HOLL	29	1627	1629	1641	S18	E01	.386	15620	29.8	14	-N	3	C		28		F
849 RAMY	29	1744	1746	1755	N18	W13	.316	15619	28.8	11	-N	3	C		28		Y5
850 CULG	29	2152E	2152E	2206	N23	W22	.470	15619	28.3	14D	-F		P	2152	40	.4	Y5
851 CULG	29	2209	2212	2220	N36	E25	.627	15626	31.8	11	-F		C	2212	50	.6	Y5
GRP69852	30	0813+2	0818+0	0826	S16	W63	.911	15615	25.6	13	1N				100	2.4	D
ABST	30	0813	0818	0826	S17	W63	.912	15615	25.6	13	1N		C	0818	96	2.3	D
KANZ	30	0814	0818	0828	S15	W63	.909	15615	25.6	14	-N		C				
MONT	30	0815	0818	0826	S16	W62	.904	15615	25.7	11	-N		C	0818	100		
853 ABST	30	1024E	1036	1045D	N21	W29	.538	15619	28.3	21D	-F		P	1036	70	.9	D Y5

Hα SOLAR FLARES

OCTOBER 1978

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE OCT	START	MAX. PHASE	END	APPROX LAT.	APPROX LONG. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONG	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
GRP69854	30	1252+2	1255+2	1301	S16	W65	.924	15615	25.7	9	-N							
RAMY	30	1252	1255	1300D	S17	W66	.931	15615	25.6	8D	-B	4	C		74			
KANZ	30	1254	1257	1301	S16	W65	.924	15615	25.7	7	-F		C					
855 MCMA	30	1821	1825	1907	S26	W24	.622	15621	29.0	46	-F		C	1825	75	1.0	E	YS
	30	2006	2030	NO FLARE PATROL														
	30	2120	2127	NO FLARE PATROL														
	30	2150	2200	NO FLARE PATROL														
	30	2205	2215	NO FLARE PATROL														
	30	2345	0047	NO FLARE PATROL														
	30	0400	0459	NO FLARE PATROL														
	31	0120	0248	NO FLARE PATROL														
856 VORO	31	0331	0335	0359	N18	W29	.521	15619	29.0	28	1F		C	0335	215	2.5	EJ	YS
	31	0402	0531	NO FLARE PATROL														
	31	0545	0705	NO FLARE PATROL														
857 HTPR	31	0754	0757	0820	N18	W34	.586	15619	28.8	26	-N		C	0757	110	1.3	E	YS
	31	0758	0803	NO FLARE PATROL														
GRP69858	31	0903+3	0910+3	0935	N20	W36	.620	15619	28.7	32	1N				240	3.1	E	
HTPR	31	0903	0910	0935	N22	W37	.641	15619	28.6	32	-N		C	0910	200	2.4	E	
MONT	31	0905	0913	0937D	N19	W34	.591	15619	28.8	32D	-N		C	0913	220			
TACH	31	0906	0911	0931	N20	W36	.620	15619	28.7	25	1B		C	0911	309	4.1	E	
GRP69859	31	1024+3	1028+5	1100	S27	W31	.688	15621	29.1	36	-N						EL	
HTPR	31	1024	1028	1100	S27	W33	.705	15621	29.0	36	-F		C	1028	70	.8	E	
MONT	31	1027	1033	1100D	S28	W31	.696	15621	29.1	33D	1N		C	1033	250			
WEND	31	1034E		1058	S26	W30	.671	15621	29.2	24D	-N		P				L	
GRP69860	31	1327+6	1331+4 1342	1352	N19	W36	.616	15619	28.9	25	-N				30	.4	E	
HTPR	31	1327	1331	1352	N18	W36	.611	15619	28.9	25	-F		C	1331	20	.2	E	
MCMA	31	1332	1335	1358	N20	W36	.620	15619	28.9	26	-N		C	1335	40	.5	E	
KANZ	31	1333	1342	1346	N19	W35	.603	15619	28.9	13	-B		C				E	
861 KANZ	31	1410	1414	1422	S17	W25	.541	15620	29.7	12	-B		C				E	YS
862 MCMA	31	1644	1647	1659	N18	W34	.586	15619	29.1	15	-F		C	1647	50	.6	E	YS
863 MCMA	31	1720	1725	1735	N18	W34	.586	15619	29.2	15	-F		C	1725	50	.6	E	YS
864 MCMA	31	1929	1934	1945	S29	E56	.893	15635	5.0	16	-F		C	1934	40	1.0	E	YS
865 VORO	31	2346	2348	2354	S18	W29	.593	15620	29.8	8	-N		C	2348	81	.9	EH	YS

A = Eruptive prominence whose base is less than 90° from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by a high speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H and K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα line suggests ejection of high velocity material.
S = Brightness follows disappearance of filament (same position).
T = Region active all day.
U = Two bright branches, parallel (||) or converging (Y).
V = Occurrence of an explosive phase: important and abrupt expansion in about a minute with or without important intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

DAILY FLARE INDICES

Includes all Flares

OCTOBER 1978

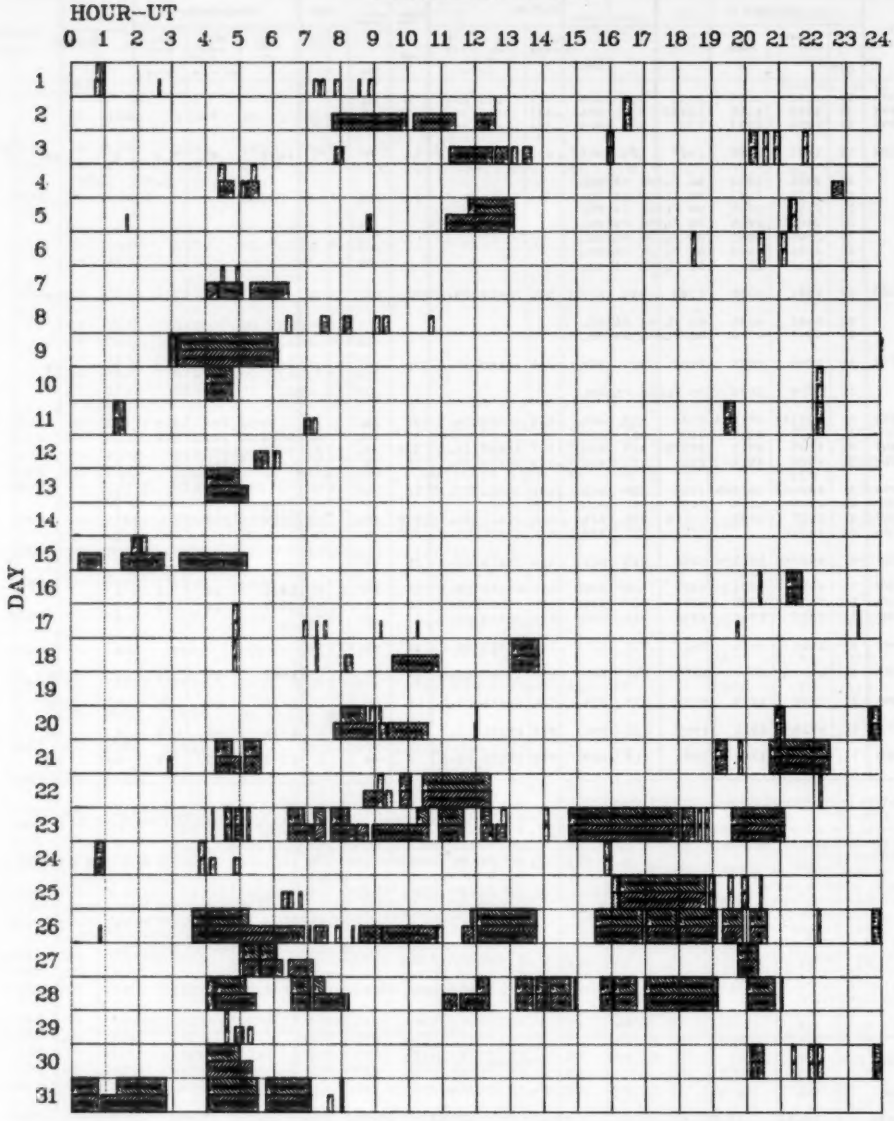
Date	Flare Index	HR. OBS.	Date	Flare Index	HR. OBS.	Date	Flare Index	HR. OBS.
781001	79.80	23.9	781011	122.83	23.1	781021	63.02	20.8
781002	6.33	23.8	781012	69.67	24.0	781022	28.42	21.4
781003	50.88	23.1	781013	607.21	23.0	781023	33.37	15.0
781004	45.51	23.7	781014	61.96	24.0	781024	25.02	23.4
781005	41.64	22.5	781015	142.39	23.6	781025	72.88	20.7
781006	18.64	23.6	781016	132.95	23.5	781026	7.64	15.6
781007	17.62	23.8	781017	43.20	23.8	781027	32.27	22.3
781008	86.24	24.0	781018	42.76	23.1	781028	84.34	16.0
781009	56.82	41.4	781019	123.67	24.0	781029	42.02	23.9
781010	47.13	23.0	781020	93.57	22.4	781030	13.90	21.1
						781031	76.12	19.6

When no Flare Index is given, it is 0 for that day.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

OCTOBER 1978



Observatories included in total patrol:

Abastumani	Herstmonceux	Kharkov	Mitaka	Upice
Athenes	Holloman	Kiev	Monte Mario	Voroshilov
Bucharest	Huancayo	Locarno	Palehua	Wendelstein
Catania	Istanboul	Lvov	Ramey	Zürich
Culgoora	Kandilli	Manila	Tashkent	
Haute Provence	Kanzelhohe	McMath-Hulbert	Tehran	

Times of no flare patrol are shown by the shaded area for each day, divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

OCTOBER 1978

OCT 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
1	3100	CRIM	29 PBI	0641	0810	210 D	30	10		
	3100	CRIM		0641	0746		140			
	3100	CRIM		0641	0730		260			
	3100	CRIM	47 GB	0641	0723.5	89	340	110		
	9100	GORK		0700.6	0723.6		368			
	9100	GORK	46 C	0700.6	0720	209	247			
	2950	GORK		0708.4	0804.8		138			
	2950	GORK		0708.4	0724.2		179			
	2950	GORK	47 GB	0708.4	0719.8	224 E	179			
	5730	IRKU		0710	0745.5		68			
	5730	IRKU		0710	0722.8		280			
	5730	IRKU		0710	0719.2		220			
	5730	IRKU	49 GB	0710	0716.4	80	35			
	650	GORK	48 C	0713.1	0750	30	12200			
	650	GORK		0713.1	0803.1		13200			
	650	GORK		0713.1	0758.6		8500			
	1415	MANI	47 GB	0713.1	0749.4	93.2	6600	2900		95MHZ
	3000	BERL	46 C	0713	0719.5	187	264			
	2650	OWIN	47 GB	0713		92	180 D			
	500	HIRA	48 C	0714	0803.6U	65 D	13000 U	2000 U		SR, SUNSET
	228	HARS	28 PRE	0715	0719	6.5	365	125		
	950	GORK		0715	0749.6		93000			
	950	GORK	48 C	0715	0746.8	88.7	1600			
	950	GORK		0715	0802.7		53000			
	200	GORK	46 C	0715.6	0720 U	100 D	150			
	200	GORK		0715.6	0806 U		1800			
	200	GORK		0715.6	0722.4		1280			
	200	GORK		0715.6	0832.8		500			
	234	POTS	45 C	0715	0805.6	157	4200			
	10715	DWIN	47 GB	0715	0723	60	220	100		
	202	IZMI	41 F	0716	0721.5	6.5	1000			
	127	TORN	49 GB	0716.2		12.4	2000 D	800 D		OFF SCALE
	606	MANI	47 GB	0716.3	0749.4	81.7	629.4	209.8		TAGE
	4995	MANI	4 S/F	0716.6	0719.5	16.1	92	30.7		
	29	UPIC	49 GB	0716.7	0723.5	28.1				
	9500	BERL	46 C	0716	0722.7	157	294			
	8800	MANI	4 S/F	0717.1	0719.5	14.1	201.6	67.2		NT
	33	UPIC	49 GB	0717.1	0723.2	32				
	33	UPIC	29 PBI	0717.1	0849.9	146.4				
	29	UPIC	29 PBI	0717.1	0923.2	157.1				
	200	HIRA	48 C	0717.2	0721.2	65 D	900	200 U		SR, SUNSET
	100	HIRA	48 C	0717	0725	65 D	40000 U	1000 U		SL, SUNSET
	113	POTS	45 C	0717	0724.7	160	9800	320		
	10400	BERN	4	0719 E	0722.8	100 D	245			OPR
	228	HARS	28 PRE	0721.5	0722	2	245	125		
	202	IZMI	25 R	0722.5	0734.5	28	440	150		
	228	HARS	46 C	0723.5	0730	13	200	120		
	930	BORD	47 GB	0726 E	0802 U	78 D	3486 D			SUNRISE
	127	TORN	43 NS	0728	0829	250 U	290	20		V=1
	200	GORK	44 NS	0911 E		100 D		5		
	245	SGMR	44 NS	1044 E	1128.4	556 D	40.9			
	410	SGMR	44 NS	1044 E	1207	556 D	16.3			
	228	HARS	46 C	0736.5	0741.5	13.5	285	170		
	228	HARS	47 GB	0750	0803 U	20	1470	510		
	202	IZMI	47 GB	0750.5	0805	19.5	1500	700		
	202	IZMI	25 R	0810	0831.5	50.5	300	100		
	228	HARS	46 C	0822.5	0824	2.5	190	110		
	228	HARS	46 C	0825	0830	7.5	340	180		
	228	HARS	46 C	0832.5	0837	17.5	180	90		
	9400	HUAN	S	1804.4	1804.7	1.3	19.8	8.5		0
	410	SGMR	6 S	1925.1	1926.9	1.7	9.9	4		
	245	SGMR	6 S	1925.1	1925.2	2.4	14	5.6		
	606	SGMR	3 S	1925.2	1927.1	2.1	26.4	10.6		
2	9400	HUAN	S	1324.8	1331.5	25	6.9	2.6		0
	9400	HUAN	S	1803.6	1815	44.6	10.3	9.1		L
3	3100	CRIM	20 CRF	0723	0834	204	9	3		
	127	TORN	45 C	0758.6	0759.5	4	470	160		
	113	POTS	45 C	0759	0800	9	700	100		
	202	IZMI	6 S	0759.5	0801	8	50	27		
	228	HARS	4 S/F	0801	0803.5	7	52	32		
	9400	HUAN	S	1324.4	1332.3	22	4.9	2.3		L
	2800	OTTA	21 GRF	1420	1429	120	4	2		
	9400	HUAN	S	1422.7	1433.7	40.3	9.7	2.6		0
	2800	OTTA	45 C	1423	1427	5.5	3.8	1.8		
	2695	SGMR	3 S	1522.1	1523.3	2.9	16.7	6.7		
	2800	OTTA	240 R	1700	1715	15	3.6	1.8		
	410	SGMR	43 NS	1714	1754.2	166 D	23			
	245	SGMR	43 NS	1714	1756	166 D	64.4			
	2800	OTTA	40 F	1753	1802.5	35	7.6			
	2800	OTTA	20 GRF	1940	1955	35	1.4	.7		
4	200	HIRA	7 C	0422.5	0423	1	130	30		0

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES
OCTOBER 1978

OCT 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	100	HIRA	7 C	0422.8	0423	1.5	300	150		O
	29	UPIC	42 SER	0823.8	0829.1	13				
	33	UPIC	42 SER	0824	0829.3	12.7				
	228	HARS	45 C	1014	1015	3	105	32		
	33	UPIC	45 C	1014.4	1015.5	3.4				
	202	IZMI	4 S/F	1014.5	1015	2	110	80		
	113	POTS	45 C	1014.5	1016.1	3.4	1100	25		
	29	UPIC	45 C	1014.8	1016	3				
	29	UPIC	2 S/F	1021	1021.2	.6				
	33	UPIC	2 S/F	1021	1021.2	.6				
	410	SGMR	44 NS	1047 E	1504	553 D	21.8			3S
	245	SGMR	44 NS	1047 E	1138.2	553 D	17			3S
	33	UPIC	46 C	1050.8	1053.1	5.9				
	29	UPIC	46 C	1050.9	1053.2	5.6				
	113	POTS	2 S/F	1052	1052.4	5	140	7		
	33	UPIC	42 SER	1129.4	1130.8	10				
	29	UPIC	42 SER	1129.6	1130	9.9				
	9400	HUAN	S	1212.5	1230.3	29	5	1.5		O
	245	SGMR	6 S	1526.3	1529.4	3.6	50.6	20.2		5
	1415	SGMR	3 S	1527.5	1529	3.7	11.5	4.6		5
	410	SGMR	6 S	1527.5	1528.6	2.1	88.1	35.2		5
	606	SGMR	3 S	1527.7	1528.5	2.8	228	91.2		5
	2800	OTTA	1 S	1528	1529	2	1.4	.7		
	2800	OTTA	23 GRF	1630	1655	70	4	2		
	2800	OTTA	1 S	1638	1641	10	5	1.8		
	2695	BCUL	1 S	1639	1641.5	7.5	7	2		
	9400	HUAN	S	1713.7	1725	21.5	6.7	3.4		O
	9400	HUAN	S	2024.7	2034.1	21	10.1	6.6		L
	2695	PENT	20 GRF	2250	2330	60	2.4	1.4		
5	700	SYDN	42 SER	0136	0137.2	3.1				
	1400	SYDN	4 S	0136.5	0137.1	1				
	100	HIRA	46 C	0207.2	0208	3	850	400		O
	200	HIRA	46 C	0207.3	0208	2.8	90	50		WR
	700	SYDN	8 S	0208	0208.1	.3				
	113	POTS	45 C	0630	0632.4	15	2100	30		
	5730	IRKU	45 C	0630.5	0631.8	5	12	6		
	5730	IRKU		0630.5	0632.3		41			
	100	HIRA	46 C	0630.8	0632	11	8000	500		WL
	200	HIRA	46 C	0631	0632	7	2000	100		WR
	228	HARS	46 C	0631	0631.5	4	460	250		
	234	POTS	45 C	0631.2	0631.6	8.3	1500	50		
	202	IZMI	48 C	0631.3	0631.5	1.5	4800	1200		
	2950	GORK	3 S	0631.3	0632.1	2.2	67 D			
	2950	GORK	29 PBI	0631.3	0633.6	9.2	9	2.5		
	606	MANI	3 S	0631.3	0632.2	3.9	30.2	10.1		
	33	UPIC	4 S/F	0631.4	0632.3	1.7				
	500	HIRA	45 C	0631.5	0632.3	4	40	20		WR
	1415	MANI	3 S	0631.5	0632.2	8.8	86.4	28.8		
	2695	MANI	3 S	0631.5	0632.2	1.8	73.8	24.6		
	10400	BERN	3	0631.6	0632.5	4	17			OPR
	9100	GORK	2 SF	0631.6	0632.2	2.5	29	11		
	8400	BERN	3	0631.6	0632.5	4	27			OPR
	202	IZMI	41 F	0632.8	0633.5	5.2	185			
	3100	CRIM	1 S	0717	0718	5	2.5	1		
	3100	CRIM	21 CRF	0755	0757	191	5	2		
	29	UPIC	2 S/F	0940.3	0940.9	1.2				
	33	UPIC	2 S/F	0940.5	0940.9	1.8				
	808	ONDR	2 S/F	0944.5	0945.5	1.5	32			
	3000	BERL	20 GRF	0945.5	0946.5	12	2.5			
	930	BORO	8 S	0947.5	0947.6	.2	25	2		
	260	ONDR	45 C	0948.5	0949.5	2.5	47	5.4		
	202	IZMI	41 F	0949.7	0950.3	2.5	190			
	3100	CRIM	1 S	1112	1113	3.5	14	5		
	3000	BERL	4 S/F	1112.5	1113.2	7.5	22			
	33	UPIC	45 C	1112.5	1113.3	3				
	2950	GORK	3 S	1112.6	1113.3	3.6	22	11		
	29	UPIC	45 C	1112.7	1114.5	2.1				
	2650	OWIN	3 S	1112	1113	4	25	10		
	127	TORN	45 C	1112 U	1113.4	4 U	64	7 U		INCOMPLETE
	408	TRST	2 F/S	1113.6	1113.7	.2	73			
	408	TRST	2 F/S	1113.8	1114	.4	78			
	260	ONDR	2 S/F	1113	1113.6	1.5	11			
	536	ONDR	8 S	1113	1113	.3	55			
	33	UPIC	4 S/F	1122.4	1123	2				
	29	UPIC	2 S/F	1122.4	1123	1.6				
	228	HARS	45 C	1222	1222.5	1.5	80	30		
	808	ONDR	8 S	1223.5	1223.5	1	88	10		
	260	ONDR	45 C	1224.3	1226.4	3	67	3.3		
	1415	SGMR	1 S	1225	1225.7	2	8.5	3.4		
	536	ONDR	8 S	1225.5	1225.5	.5	78			
	606	SGMR	3 S	1225.7	1226.2	1.2	151	60.4		
	410	SGMR	6 S	1226	1226.7	3	47.7	19.1		
	245	SGMR	6 S	1226.2	1228	2.8	12.9	5.2		
	930	BORO	45 C	1226.4	1227.2	1.6	62	7		

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	237	TRST	41	F	1227.5	1228.2	1	190			0
	2800	OTTA	21	GRF	1250	1342	280	12.5	4.9		
	410	SGMR	43	NS	1341.1	1650.2	378.9D	46.7			CONT
	245	SGMR	43	NS	1301.1	1650.2	378.9D	11.3			CONT
	113	POTS	45	C	1302.9	1304	3.1	20000	1500		
	33	UPIC	4	S/F	1302.9	1303.8	2.6				
	260	ONDR	45	C	1302	1302	3.5	216 D	18		
	228	HARS	8	S	1303	1303.5	1.5	600	250		
	234	POTS	45	C	1303.2	1304	1.6	2300	400		
	2800	OTTA	1	S	1303.5	1304	2	2.4	1		
	29	UPIC	4	S/F	1303.5	1304.1	1.5				
	245	SGMR	48	GB	1303.6	1304	3.4	1090	436		5
	237	TRST	41	F	1303.8	1303.9	.6	3050			0
	113	POTS	45	C	1316	1408	108 D	14			
	3000	BERL	4	S/F	1334	1405.2	71	105			
	7000	SAOP	4	S/F	1335.4	1405.2	77.7				4R
	9400	HUAN		S	1336.4	1421.5	114.7	10.2	5.4		0
	260	ONDR	28	PRE	1340	1348	21	12	5.8		
	228	HARS	45	C	1400	1404	15	210	90		
	410	SGMR	48	GB	1400.4	1404	27.6	565	226		3S,SWF
	260	ONDR	46	C	1400.5	1402	10	148	70		
	260	ONDR	29	PBI	1400.5	1413	30	16	9.5		
	808	ONDR	3	S	1401	1403	17	45	19		
	234	POTS	45	C	1402	1403.9	16	140	20		
	113	POTS	45	C	1402	1407.5	18	280	100		
	2800	OTTA	4	S/F	1402.2	1405	28	92	24		
	1415	SGMR	3	S	1402.3	1405.3	19.7	52.9	21.2		3S,SWF
	237	TRST	47	GB	1402.3	1403.9	30	365			25L
	245	SGMR	6	S	1402.4	1404.1	25.6	194	77.6		3S,SWF
	606	SGMR	3	S	1402.9	1404.2	17.1	74.4	29.8		3S,SWF
	4995	BCUL	45	C	1402	1404.5	32	87	29		
	536	ONDR	3	S	1402	1403.2	7	148	64		
	8400	BERN	20		1403	1405.6	57	36			OPR
	10400	BERN	20		1403	1405.6	57	38			OPR
	9400	HUAN		S	1403	1405.1	16.6	42.4	19.2		L
	4995	SGMR	3	S	1403.1	1405	18.9	93.9	37.6		3S,SWF
	8800	SGMR	3	S	1403.1	1405.2	16.9	27.3	10.9		3S,SWF
	2695	SGMR	3	S	1403.3	1405.3	20.7	106	42.4		3S,SWF
	2695	BCUL	20	GRF	1403.5E	1406	24.5U	93	31		
	1420	BCUL	20	GRF	1403 E	1405 U	17.5U	46	15		
	9500	BERL	4	S/F	1403	1405.5	33	35			
	2650	OWIN	3	S	1403	1405	30	100	30		
	930	BORD	4	S/F	1403	1404.8	21	46	8		
	9400	HUAN		S	1910.5	1916	13.3	6.8	2.9		0
	2800	OTTA	1	S	1942	1944	4	2.8	1		
	245	SGMR	7	S	1943	1943.1	2	262	105		CONT
	410	SGMR	6	S	1943.1	1943.8	1.9	31.3	12.5		CONT
	606	SGMR	3	S	1943.5	1943.7	1.5	31.6	12.6		CONT
	2800	OTTA	1	S	1948	1949.2	3	9.2	2		
	2695	PENT	20	GRF	2220	2235	70	2.4	1.6		
6	5730	IRKU	45	C	0451	0452	6	3	3		
	5730	IRKU			0451	0454.6		8			
	5730	IRKU	45	C	0500.3	0502.3	8.5	5	2		
	5730	IRKU			0500.3	0506.3		8			
	5730	IRKU			0500.3	0504.4		3			
	202	IZMI	8	S	0951.5	0951.5	.2	64	25		
	113	POTS	45	C	0951.5	0951.6	.4	700	208		
	536	ONDR	3	S	0951.5	0951.5	.3	29			
	260	ONDR	8	S	0952.5	0952.5	.3	29			
	260	ONDR	2	S/F	0959.2	1000	2	10	2.4		
	9500	BERL	20	GRF	1001	1007.5	12	6.5			
	3000	BERL	46	C	1001.5	1007	9.5	11			
	3100	CRIM	1	S	1001.5	1007	9	9	3		
	9100	GORK	1	S	1006.6	1007.3	3.6	10	5		
	930	BORD	42	SER	1008	1014.4	7	55	2		
	29	UPIC	3	S	1010.7	1011	.5				
	33	UPIC	3	S	1010.8	1011	.6				
	808	ONDR	1	S	1011.2	1011.2	.2	28			
	113	POTS	48	C	1023.8	1031.2	7.7	300	1		
	29	UPIC	2	S/F	1024.4	1024.8	.9				
	260	ONDR	2	S/F	1024	1025	1	8			
	2800	OTTA	20	GRF	1310	1323	40	2.8	1.4		
	260	ONDR	1	S	1330.2	1330.2	.3	9			
	9400	HUAN		S	1342.4	1406.4	36.3	4.8	2.8		R
	2800	OTTA	27A	RF	1455		250	2	1.7		
	2800	OTTA	24	R	1455	1515	20	2	1		
	2800	OTTA	24P	R	1515		205	2			
	245	SGMR	43	NS	1532	1541	268 D	13.3			
	410	SGMR	43	NS	1532	1532.8	268 D	50.2			
	410	SGMR	4	S/F	1541.9	1543.1	3.8	27.7	11.1		
	606	SGMR	4	S/F	1543.2	1543.3	1.8	60.3	24.1		
	2800	OTTA	3	S	1642.8	1644.5	5	12.4	9.8		
	7000	SAOP	46	C	1643	1654.7	123				5R
	245	SGMR	6	S	1643.1	1643.2	21.9	74.5	29.8		3S,SWF

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	1415	SGMR	3 S	1643.4	1654.7	19.6	275	110		3S,SWF
	606	SGMR	3 S	1644.5	1657.6	18.5	146	58.4		3S,SWF
	410	SGMR	49 GB	1645	1657.3	20	518	207		3S,SWF
	930	BORC	41 F	1646	1647.8	2.2	40	3		
	2800	OTTA	30 PBI	1647.8	1647.8	25	39	14.2		
	9400	HUAN	F	1650.5	1654.7	6.9	117	46.7		L
	2800	OTTA	2 S/F	1652.5	1655	8	5.6	2.8		
	4995	SGMR	3 S	1652.5	1654.7	9.5	92.1	36.8		3S,SWF
	2695	SGMR	3 S	1652.5	1655.1	9.5	36	14.4		3S,SWF
	8800	SGMR	3 S	1652.5	1654.7	9.5	91.3	36.5		3S,SWF
	15400	SGMR	3 S	1653.6	1655	6.4	71.5	28.6		3S,SWF
	930	BORD	46 C	1653	1654.6	7	126	10		
	9400	HUAN	PBI	1657.4	1657.4	34.2	11.2	5.4		L
	2800	OTTA	26 FAL	1840	1905	25	-2	-1		
	9400	HUAN	S	1908.4	1930	31.1	8	5.2		D
	2800	OTTA	3 S	2119.7	2120	1	27	7		
7	260	ONDR	43 NS	0800		398 D	50	4		
	200	GORK	43 NS	0810 E		180 E		5		
	245	SGMR	44 NS	1051 E	1209	549 D	20.8			
	410	SGMR	44 NS	1051 E	1616.2	549 D	16.8			
	7000	SAOP	22 GRF	1150.4	1317	15				
	237	TRST	5 S	1206.1	1206.1	.1	115	30		0
	9400	HUAN	S	1240.5	1244.6	11.8	4.8	.9		2R
	9100	ARCE	7 S/F	1245.9	1247.2	3.4				0
	9100	ARCE	1 S	1252.1	1252.2	.5				
	9100	ARCE	40 F	1313	1315.8	6.4				
	9100	ARCE	4 S/F	1326.4	1327.6	3.2				
	9100	ARCE	45 C	1333.5	1334.4	1.8				
	536	ONDR	8 S	1414	1414	.3	65			
	9400	HUAN	S	1501.8	1512.2	43	7.2	3.9		L
	2800	OTTA	240 R	1510	1630	40.	2.4	1.2		
	9400	HUAN	S	1523.3	1526.1	3.9	16	6.2		L
	9100	ARCE	20 GRF	1525	1526.5	8.5				
	2800	OTTA	1 S	1732	1735	6	1	.5		
	9400	HUAN	S	1827.3	1844.6	23.7	6.4	3.9		D
	2695	PENT	240 R	1910	2135	145	6.2	3.1		
	9400	HUAN	S	1956.8	2021.5	44.5	8	4.7		L
	200	HIRA	44 NS	2040 E	0140	690 D	60	20		MR
	2695	PENT	20 GRF	2205	2212	55	2	1		
8	200	GORK	44 NS	0436 E		370 E		10		
	127	TORN	43 NS	0834	0915.1	140 U	72	1.6		V=1
	100	GORK	43 NS	0846		140		5		
	260	ONDR	44 NS	0900 E		364 D	67			
	245	SGMR	44 NS	1052 E	1457.5	548 D	38.5			
	410	SGMR	44 NS	1052 E	1614.2	548 D	9.4			
	9100	ARCE	22 GRF	0704.8	0714.4	47.5				
	10400	BERN	4	0833.9	0835.8	9	114			
	3100	CRIM	3 S	0834	0835.5	9	19	6		
	3000	BERL	4 S/F	0834	0835.6	13	62			
	113	POTS	45 C	0834.3	0841.1	11	5000	300		
	200	GORK	46 C	0834.4	0835.1	7.3	30			
	200	GORK		0834.4	0839.3		490			
	100	GORK	46 C	0834.4	0841.9	11.5	64600	3000		
	9100	GORK	3 S	0834.5	0835 U	4.4	72 D			
	9500	BERL	4 S/F	0834.5	0835.7	11	93			
	234	POTS	45 C	0834.6	0836.4	7.9	1500	70		
	237	TRST	47 GB	0834.6	0835.9	4.4	1200			0
	237	TRST		0834.6	0838.4		1250			0
	237	TRST		0834.6	0837.3		850			0
	2950	GORK	20 GRF	0834.7	0835.8	76	53	28		
	606	MANI	4 S/F	0834.7	0835.7	4.2	97.2	32.4		
	1415	MANI	4 S/F	0834.7	0835.6	3.3	50	16.7		
	4995	MANI	4 S/F	0834.8	0836	3.1	66.9	22.3		
	2695	MANI	4 S/F	0834.8	0835.7	3	50.4	16.8		
	8800	MANI	4 S/F	0834.8	0835.8	2.4	74.9	25		I
	9100	ARCE	4 S/F	0834.8	0835.9	7				
	29	UPIC	4 S/F	0834.8	0835.7	3				
	33	UPIC	4 S/F	0834.9	0835.6	3.9				
	930	BORD	45 C	0834	0836	6	109	10		
	10715	DWIN	3 S	0836	0837	6	70	30		
	2650	DWIN	3 S	0836	0837	8	55	20		
	202	IZMI	45 C	0837.5	0838.5	3.5	1350	600		
	127	TORN	47 GB	0838	0840 U	7.7	790 D	190		OFF SCALE
	9100	GORK	1 S	0927.3	0930.4	5.4	14	7		
	9100	ARCE	20 GRF	0928.5	0931.4	13				
	33	UPIC	2 S/F	1005.6	1006.1	1.3				
	29	UPIC	2 S/F	1005.8	1006.1	1.4				
	9100	GORK		1043.6		7.1E				
	7000	SAOP	22 GRF	1130.4		9.6				0
	2800	OTTA	20 GRF	1310		50 D	1.8			
	9400	HUAN	S	1336.2	1349.4	31.1	10.2	3.2		0
	7000	SAOP	20 GRF	1339.4		5				0
	2800	OTTA	21 GRF	1437	1515	70 D	2.6			

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	2800	OTTA	1	S	1441.5	1443	3	1.4	.6		
	7000	SAOP	3	S	1442	1442.8	11.5				O
	9400	HUAN		S	1512.8	1533	36.2	5.1	3.8		O
	9400	HUAN		S	1538.2	1538.8	2.2	25.6	7.3		R
	9100	ARCE	3	S	1538.6	1539.1	2				
	2800	OTTA	1	S	1836.5	1837.5	1.5	1.6	.8		
	2800	OTTA	21	GRF	1845	2100	360 D	18.2			
	9400	HUAN		F	1935.7	2028.8	107.3	22.2	17.1		O
	2695	PENT	1	S	2017	2017.5	1.5	2.6	1.3		
9	200	HIRA	46	C	0024.5	0025	1.5	3000	150		MR
	500	HIRA	46	C	0024.6	0025.9	3	22	10		MR
	700	SYDN	4	S	0024.7	0025.8	3.5				
	1400	SYDN	45	C	0024.8	0025.4	3.2				
	100	HIRA	46	C	0025	0025.9	4	25000	3000		WL
	2695	PENT	3	S	0025	2425.8	4	37.6	9.4		
	9100	GORK	2	SF	0550.4	0551	7	12	4		
	113	POTS	45	C	0727.1	0727.6	1	150	7		
	237	TRST	41	F	0727.3	0727.5	.5	150			O
	260	ONDR	44	NS	0730 E		450 D	52			
	245	SGMR	44	NS	1052 E	1410.4	548 D	371			3,CONT
	410	SGMR	44	NS	1052 E	1443.4	548 D	86.4			3,CONT
	930	BORD	45	C	0731.7	0731.7	.2	11	2		
	9100	GORK	20	GRF	1106.4	1109	18.4	14	5		
	930	BORD	41	F	1118	1119.2	2	49	2		
	9100	GORK	21	GRF	1129.9	1131.8	11.4	6	2		
	3000	BERL	4	S/F	1130.5	1131	9.5	13			
	930	BORD	46	C	1130.5	1130.8	.9	221	2		
	7000	SAOP	4	S/F	1130.6	1131	20.5				29R
	9500	BERL	4	S/F	1130.7	1131	2.3	14			
	8900	BERN	4		1130.7	1131	.9	21			
	8400	BERN	4		1130.7	1131	.9	23			
	10400	BERN	4		1130.7	1131	.9	17			
	808	ONDR	8	S	1130.8	1130.8	.3	283			
	2950	GORK	3	S	1130.8	1131.1	1.5	15	7		
	9100	GORK	2	SF	1130.8	1131.1	.9	18	8.5		
	10715	DWIN	3	S	1131	1131.5	1	10	5		
	2650	DWIN	3	S	1131	1132	2	10	5		
	237	TRST	41	F	1206.4	1206.7	.6	195			O
	9100	GORK	2	SF	1227.2	1229.5	2.5	12	6		
	2800	OTTA	1	S	1247	1250	5	1.4	.7		
	7000	SAOP	20	GRF	1252.4		10				O
	9400	HUAN		S	1302.3	1417.6	95.7	6.6	1.5		O
	113	POTS	1	S	1325.7	1325.8	.8	200	70		
	237	TRST	41	F	1325.8	1325.9	.1	100			2R
	234	POTS	45	C	1410	1410.2	.7	280	70		
	237	TRST	41	F	1410.2	1410.3	.3	825			6L
	2800	OTTA	20	GRF	1540	1600	100	2.4	1.2		
	9400	HUAN		PRE	1748.5	1940.8	112.3	18.1	6.2		O
	2800	OTTA	20	GRF	1800	1835	95	2.2	1.6		
	4995	BCUL			1936	2026.5U		187	62		
	4995	BCUL			1936	2003.5U		166	55		
	4995	BCUL	21	GRF	1936	1951.5	129.5	187	62		
	7000	SAOP	46	C	1938.2	1951	362				3R
	2800	OTTA	2	S/F	1939.2	1939.5	1.5	1.2			
	9400	HUAN		C	1940.8	1951	67.8	333	114.5		L
	2800	OTTA			1945	1951	11.5	108			
	2800	OTTA	45	C	1945	2023.5	62	140	73		
	1420	BCUL	28	PRE	1948.5E	1951.5	10.5D	85	28		
	15400	SGMR	45	C	1948.8	2015.5		175			2,CONT,SWF
	15400	SGMR	45	C	1948.8	2001.8		129			2,CONT,SWF
	15400	SGMR	45	C	1948.8	1951	61.2	217	86.8		2,CONT,SWF
	245	SGMR	49	GB	1949.3	2014.2		121			2,CONT,SWF
	410	SGMR	7	C	1949.3	2014.1		35.7			2,CONT,SWF
	410	SGMR	7	C	1949.3	1952	60.9	99.7	39.9		2,CONT,SWF
	245	SGMR	49	GB	1949.4	1950.5	60.6	4060	1620		2,CONT,SWF
	4995	SGMR	45	C	1949.5	2016		187			2,CONT,SWF
	4995	SGMR	45	C	1949.5	2001.9		183			2,CONT,SWF
	4995	SGMR	45	C	1949.5	1915.2	59.5	187	74.8		2,CONT,SWF
	2695	BCUL			1949.5E	2033		201	67		
	2695	BCUL			1949.5E	2024.5		209	70		
	2695	BCUL	21	GRF	1949.5E	2016.5	84.5D	209	70		
	2695	BCUL			1949.5E	2002.5		177	59		
	2695	BCUL			1949.5E	1952		177	59		
	8800	SGMR	45	C	1949.6	2015.5		195			2,CONT,SWF
	8800	SGMR	45	C	1949.6	2001.8		220			2,CONT,SWF
	8800	SGMR	45	C	1949.6	1951.2	60.4	415	166		2,CONT,SWF
	2695	SGMR	45	C	1950.2	1951.2	59.1	128	66.4		2,CONT,SWF
	2695	SGMR	45	C	1950.2	2015.5		166			2,CONT,SWF
	2695	SGMR	45	C	1950.2	2001.8		134			2,CONT,SWF
	1415	SGMR	47	GB	1950.5	2016		2790			2,CONT,SWF
	1415	SGMR	47	GB	1950.5	1951.2	60.5	155	1120		2,CONT,SWF
	606	SGMR	45	C	1950.6	2015.9		49.9			2,CONT,SWF
	606	SGMR	45	C	1950.6	1952	60.4	79	31.6		2,CONT,SWF
	2800	OTTA			1956.5	2001.9	11.5	108			

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	1420	BCUL	49	GB	1959	2015	26.5D	2086	695		
	2800	OTTA			2008	2015.5	12	137			
	2800	OTTA			2020	2023.5	27	140			
	1420	BCUL	29	PBI	2025.5	2030.5	22.5D	31	10		
	200	HIRA	44	NS	2045 E	2145	225 D	25	10		MR
	2800	OTTA	30	PBI	2047	2047	170	18.2	8.2		
	9400	HUAN		PBI	2048.6	2048.6	106.2	49.4	27.6		L
	9400	HUAN		S	2057	2101.3	8.8	13.2	4		L
	2800	OTTA	20	GRF	2057	2102	16	14.6	7		
	9400	HUAN		S	2152.8	2204.2	21.5	14.8	8.7		D
10	113	POTS	45	C	0739	0740.3	2	140	10		
	260	ONDR	44	NS	0740 E		440 D	50			
	245	SGMR	44	NS	1054 E	1600.1	546 D	44.2			
	410	SGMR	44	NS	1054 E	1707.5	546 D	8.1			
	10715	DWIN	45	C	0907	0911	13	40	15		
	8400	BERN	3		0915.1	0916.6	8	12			
	10400	BERN	3		0915.1	0916.6	8	12			
	9100	ARCE	1	S	0916.2	0917	1.8				
	10400	BERN	45		1007	1010.7	12	50			
	8400	BERN	45		1007	1010.7	12	48			
	9500	BERL	4	S/F	1007.5	1010.6	9.5	55			
	3000	BERL	4	S/F	1007.5	1010.7	9.5	4.3			
	9100	GORK	46	C	1007.6	1008.2	3.7	31			
	9100	GORK	29	PBI	1007.6	1011.2	88	30	11		
	9100	GORK			1007.6	1010.8		64			
	9100	ARCE	45	C	1007.6	1011	6.4				
	9100	ARCE			1007.6	1018.2	1.9				
	9100	ARCE			1009.5	1011	4.5				
	9100	ARCE	30	PBI	1014		82				
	3000	BERL	20	GRF	1025	1033	65	6.4			
	2950	GORK	20	GRF	1027.4	1034.6	14.6	8	4		
	9500	BERL	20	GRF	1028	1033.5	82	23			
	8400	BERN	20		1028.1	1034.5	62	21			
	10400	BERN	20		1028.1	1034.5	62	18			
	9100	ARCE	20	GRF	1028.1	1034.6	32.7				
	930	BORD	42	SER	1119	1123	7	277	2		
	808	ONDR	41	F	1122.5	1122.5	2	48			
	2800	OTTA	23	GRF	1230	1320	260	3.2	1.6		
	2800	OTTA	1	S	1442	1443	2	1.2	.6		
	2800	OTTA	1	S	1533	1533.7	1	2.2	1.1		
	2800	OTTA	240	R	1810	1845	35	3.2	1.6		
	9400	HUAN		S	1826	1840	28.2	4.8	3.9		D
	2800	OTTA	1	S	1910	1912	5	7	2		
	2800	OTTA	20	GRF	1943	1950	20	2.6	1.3		
	2800	OTTA	20	GRF	2010	2030	40	1.6	.8		
	2695	PENT	22	GRF	2118	2220	110	3.6	1.8		
11	100	HIRA	43	NS	0420	0618	225 D	80	40		MR
	200	HIRA	43	NS	0430	0650	215 D	20	10		MR
	202	IZMI	43	NS	0600		360	58			
	100	GORK	44	NS	0633 E		294		10		
	200	GORK	44	NS	0645 E		100 E		5		
	127	TORN	44	NS	0700 E	0956.3	250 D	240	10		V=2
	260	ONDR	44	NS	0720 E		460 D	47			
	245	SGMR	44	NS	1055 E	1805.4	545 D	74.4			3
	410	SGMR	44	NS	1055 E	1424.6	545 D	8.9			3
	200	GORK	44	NS	1109 E		87 E		5		
	9500	BERL	1	S	0730	0730.4	2.5	9.1			
	9100	GORK	1	S	0730.2	0730.4	1.4	12	5.5		
	3000	BERL	20	GRF	0803	0847.6	282	28			
	2950	GORK	20	GRF	0804.7	0848 U	55 E	29 U			
	8400	BERN	20		0822.5	0900.3	90	17			OPR
	8900	BERN	20		0822.5	0900.3	90	16			OPR
	10400	BERN	20		0822.5	0900.3	90	18			OPR
	950	GORK	22	GRF	0833	0847.2	22	14			
	930	BORD	46	C	0834	0839.9	7	34	4		
	9100	GORK	20	GRF	0836.8	0858.5	87	22	11		
	3100	CRIM	29	PBI	0837	0856	95	19			
	3100	CRIM	7	C	0837	0848	18	26	9		
	113	POTS	45	GRF	0840	0842	17	700	100		
	9500	BERL	20	GRF	0840	0903	280	20			
	100	GORK	46	CU	0841.4	0843.4U	7.7	-1700 D			
	127	TORN	45	C	0850	0851.6	6.5	260	20		
	2650	DWIN	45	C	1118	1121	6	40	10		
	113	POTS	45	C	1120.8	1121.3	1.3	150	15		
	2650	DWIN	45	C	1129	1131	4	20	10		
	113	POTS	45	C	1140.5	1141.8	2.1	300	30		
	202	IZMI	5	S	1141	1141.5	1	120	50		
	33	UPIC	8	S	1141.5	1141.6	.6				
	29	UPIC	8	S	1141.7	1142.1	.7				
	808	ONDR	2	S/F	1145.5	1146.2	1.5	50			
	9400	HUAN		S	1215	1302	22.2	5	2.7		D
	2800	OTTA	20	GRF	1350	1530	280	10.2	6.1		
	9400	HUAN		S	1521.7	1539.7	30.5	6.7	2.1		D

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	2695	PENT	20	GRF	2055	2112	95	2.2	1.1		
	2695	PENT	1	S	2308.8	2309.3	1	4.6	2.3		
12	500	HIRA	27	RF	0129	0220	120	15	5		WL
	200	HIRA	27	RF	0142	0212	47	70	30		WRWL
	100	HIRA	27	RF	0150	0221	60	500	150		O
	35000	NAGO	20	GRF	0210	0226	28	13			
	200	GORK	44	NS	0430 E		510 E		5		
	100	GORK	44	NS	0430 E		310 D		5		
	202	IZMI	44	NS	0600		215	24			
	127	TORN	44	NS	0700 E	0958.7	360 D	42	3		V=1
	260	ONDR	44	NS	0720 E		453 D	40			
	245	SGMR	44	NS	1057 E	1632.7	543 D	55.7			
	410	SGMR	44	NS	1057 E	1415	543 D	5.8			
	237	TRST	41	F	0804.5	0804.6	.2	135			O
	100	GORK	41	F	0819.2	0819.6	2.2	40			
	100	GORK			0819.2	0820.8		40			
	100	GORK	41	F	0920	0920.9	5	40			
	100	GORK			0920	0923.9		40			
	2800	OTTA	20	GRF	1320	1325	30	1.6	.8		
	9100	ARCE	2	S/F	1335.9	1336.3	1.5				
	9100	ARCE	40	F	1403.2	1404.4	5				
	9100	ARCE	3	S	1420.8	1421.2	1.4				
	10400	BERN	3		1438.7	1439.2	1.5	12			
	8400	BERN	3		1438.7	1439.2	1.5	22			
	9100	ARCE	3	S	1438.9	1439.3	2.2				
	2800	OTTA	1	S	1454	1456	6	4	2		
	2800	OTTA	22	GRF	1533	1537.5	22	13	6.5		
	930	BORD	45	C	1623.7	1623.9	.9	22	2		
	2800	OTTA	27	RF	1835		140	3.2	2.9		
	2800	OTTA	24	R	1835	1843	8	3.2	1.1		
	2800	OTTA	24P	R	1843		112	3.2			
	2800	OTTA	26	FAL	2035	2055	20	-3.2	-1.6		
	200	HIRA	44	NS	2045 E	0550	555 D	35	20		HR
	2695	PENT	1	S	2256	2257	2	3.2	2.2		
13	200	GORK	44	NS	0454 E		450 E		10		
	100	GORK	44	NS	0454 E		426		10		
	202	IZMI	44	NS	0600		360	90			
	260	ONDR	44	NS	0730 E		450 D	148	9		
	127	TORN	44	NS	0745 E	1002.4	410 D	250	130		V=2
	245	SGMR	44	NS	1058 E	1338.5	542 D	442			CONT
	410	SGMR	44	NS	1058 E	1319.3	542 D	652			CONT
	1415	SGMR	43	NS	1300	1357	300	48.4			CONT
	606	SGMR	43	NS	1300	1320.5	300	820			CONT
	950	GORK	1	S	0538.2	0542.1	5.7	4			
	1415	MANI	1	S	0538.6	0541.5	4.4	5.3	1.8		
	2950	GORK	29	PBI	0539	0544.2	9.6	11	6		
	2950	GORK	2	SF	0539	0542.1	5.1	24	12		
	3100	CRIM	1	S	0539	0542	6	22	7		
	2695	MANI	4	S/F	0539.2	0541.7	5.7	15.5	5.2		
	9500	BERL	20	GRF	0659	0734	81	13			
	3000	BERL	20	GRF	0700	0734	78	11			
	9100	ARCE	22	GRF	0727.8	0734.4	12.6				
	9100	GORK	20	GRF	0728.7	0734.2	10.4	15	7.5		
	9100	GORK	1	S	0745.7	0750.1	5.3	10	5		
	8400	BERN	20		0758.2	0804	58	15			
	10400	BERN	20		0758.2	0804	58	8			
	9100	GORK	20	GRF	0801.8	0804	10.9	14	6.5		
	9100	ARCE	23	GRF	0803.1	0812.2	22.6				
	9100	ARCE	1	S	0817.6	0817.9	1				
	1470	BERL	4	S/F	0937.3	0939	2.7	114			
	3100	CRIM	1	S	0937.5	0939.5	2	13	4		
	2950	GORK	1	S	0937.7	0939	1.8	10	5		
	3000	BERL	4	S/F	0938	0938.6	1.5	9.5			
	9500	BERL	1	S	0938	0938.4	1.5	3.9			
	9100	GORK	1	S	0938.3	0938.9	1.1	9	4.5		
	2650	OWIN	3	S	0938	0939	2	10	5		
	808	ONDR	45	C	1156.7	1157.2	3.5	40	10		
	9400	HUAN		S	1156.8	1158	3.9	35.8	12.6		O
	650	GORK	2	SF	1157.2	1158.5	1.9	22	8		
	3000	BERL	4	S/F	1157.4	1158	8.6	66			
	8400	BERN	3		1157.4	1158.1	5	45			
	8800	SGMR	3	S	1157.4	1158.2	2.6	60	18		
	10400	BERN	3		1157.4	1158.1	5	23			
	9100	ARCE	3	S	1157.4	1158.5	3				
	9500	BERL	4	S/F	1157.5	1157.8	3.5	27			
	1470	BERL	4	S/F	1157.5	1158.8	12	34			
	3100	CRIM	3	S	1157.5	1158.5	7	54	16		
	950	GORK	3	S	1157.5	1158.6	2.8E	13			
	2950	GORK	3	S	1157.5	1158.4U	3 E	85			
	1415	SGMR	3	S	1157.6	1158.7	3.6	50	15		
	606	SGMR	3	S	1157.7	1158.4	1.8	22	6.6		
	4995	SGMR	3	S	1157.8	1158.6	5.6	69	20.7		
	9100	GORK	1	S	1157.8	1158.3	3.9	31	16		

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	10715	DWIN	3 S	1157	1158	3	15	10		
	2650	DWIN	3 S	1157	1158	10	65	20		
	930	BORC	45 C	1157	1158.7	8	21	5		
	7000	SAOP	3 S	1158.1E	1158.1	76				13L
	2695	SGMR	3 S	1158	1158.8	8	77	23.1		
	536	ONDR	29 PBI	1228.5	1320	92	162	16		
	536	ONDR	49 GB	1228.5	1239.3	20	247	113		
	3100	CRIM	47 CB	1234	1237.5	13	410	120		
	3100	CRIM		1234	1241.5		240			
	1470	BERL	46 C	1234.5	1236.4	128	460			
	3000	BERL	46 C	1234.5	1237.8	130	113			
	808	ONDR	29 PBI	1234.5	1318.6	80	212	32		
	808	ONDR	49 GB	1234.5	1237.6	15	575	320		
	950	GORK	47 GB	1234.6		29 E	100 D			
	2950	GORK	47 GB	1234.7		33 E	140 E			
	650	GORK		1234.8	1239 U	255 E		-150		
	650	GORK	29 PBI	1234.8	1244.3	18.7E	70			
	606	SGMR	47 GB	1234.8	1236.9	25.2	841	340		SWF
	1415	SGMR	47 GB	1234.9	1237.5		470			3G,4,CONT,
	1415	SGMR	47 GB	1234.9	1235.2	25.1	540	220		SWF
	2800	OTTA	45 C	1234	1237.8	14	220			
	930	BORO	46 C	1234	1238.7	110	567	30		
	2650	DWIN	45 C	1234		20	150 D			
	200	GORK	46 C	1235	1240 U	30	100 D			
	200	GORK		1235	1303.5		1950			
	200	GORK		1235	1244 U		430 D			
	7000	SAOP	46 C	1235	1237.2	688.6				13L
	9500	BERL	4 S/F	1235	1238	129	168			
	410	SGMR	49 GB	1235.2	1238.4	24.8	2000	800		3G,4,CONT,
	9100	ARCE	4 S/F	1235.2	1238.1	5.5				
	9400	HUAN	C	1235.2	1237.8	5.1	601.4	161.8		R
	10400	BERN	4	1235.5	1238	75	375			
	8400	BERN	4	1235.5	1238	75	490			
	4995	SGMR	3 S	1235.6	1237.4	26.3	493	200		SWF
	2695	SGMR	3 S	1235.6	1236.5	24.4	384	150		3G,4,CONT,
	8800	SGMR	3 S	1235.6	1238.1	25.8	492	200		3G,4,CONT,
	15400	SGMR	3 S	1235.8	1237.9	23.7	312	120		SWF
	113	POTS	45 C	1236	1241	149 D	70000			
	100	GORK		1236	1244.5		999999			
	100	GORK	46 C	1236	1243.4	28	999999			
	245	SGMR	49 GB	1236.2	1238.9	23.8	268000 1	1000		SWF
	260	ONDR	49 GB	1236.5		10	202 D	168		
	234	POTS	45 C	1236.5	1238	146 D	23000			
	228	HARS	47 GB	1236.5	1339 U	36	4200 D	550		
	228	HARS		1236.5	1242.5	3 U	1000			
	35000	SGMR	3 S	1236.9	1239	22.8	242	72.6		3G,4,CONT,
	237	TRST	47 GB	1237.3	1237.8	210 D	43500			0
	237	TRST		1237.3	1239.5		20000			31L
	237	TRST		1237.3	1238.8		35000			5L
	408	TRST		1237.3	1238.2	9				
	127	TORN	49 GB	1237.5	1241 D	120 D	3200 D	750		SATURATION
	9400	HUAN	PBI	1240.3	1240.3	132.2	186.9	16.3		0
	33	UPIC	48 C	1240.4	1245	12.4				
	9100	ARCE	29 PBI	1241.2	1241.7	47				
	29	UPIC	48 C	1241	1245.1	10				
	228	HARS		1248.5	1251.5		360			
	2800	OTTA	29 PBI	1248	1248	112	17.2	6.4		
	228	HARS		1258.2	1300		170			
	228	HARS	46 C	1314	1316.2	4	240	110		
	228	HARS	46 C	1320.5	1321	3.5	300	80		
	9400	HUAN	S	1407	1415.7	23	6.5	2.3		R
	245	SGMR	6 S	1534	1535	6	73	29		CONT
	410	SGMR	48 GB	1535.9	1537.6	12.1	976	390		CONT
	10715	DWIN	45 C	1535		60	408 D			
	606	SGMR	3 S	1541.5	1542.8	7.5	77.7	31		CONT
	2800	OTTA	1 S	1645	1646	5	1.6	.8		
	9400	HUAN	S	1658.2	1715.7	48.1	8.1	3.4		R
	9400	HUAN	S	1821	1836.7	36	4.9	3.3		0
	9400	HUAN	S	1830.7	1831.6	2	17.9	7.3		L
	2800	OTTA	20 GRF	1920	1955	135	8.6	4.4		
	9400	HUAN	S	2046.8	2047.5	2.2	14.6	6.9		0
	9400	HUAN	S	2130	2130.7	1.6	27.6	12.5		L
	2800	OTTA	1 S	2130.3	2130.6	1	6	2.8		
14	100	GORK	44 NS	0427 E		393 D		5		
	200	GORK	44 NS	0427		400 E		10		
	200	HIRA	44 NS	0600 E	0700 U	120 D	30	30		ML
	260	ONDR	44 NS	0710 E		479 D	78	4		
	127	TORN	44 NS	0740 E	0817.6	410 D	76	6		V=1
	202	IZMI	43 NS	0836		159 .	95			
	245	SGMR	44 NS	1059 E	1448.7	541 D	72.2			SWF
	410	SGMR	44 NS	1059 E	1533.5	541 D	7.4			SWF
	3100	CRIM	3 S	0645	0651	18	15	5		
	3100	CRIM	29	0645	0655	225	10	4		
	8400	BERN	3	0648.5	0651.1	6	78			

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OCT 1978	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	8900	BERN	3		0648.5	0651.1	6	62			
	10400	BERN	3		0648.5	0651.1	6	51			
	9100	GORK	21	GRF	0649	0658	19	20	9		
	2950	GORK	3	S	0649.6	0651.2	4.2	33	15		
	9500	BERL	3	S	0650	0651	2.5	49			
	2695	MANI	3	S	0650	0651	3	29.4	9.8		
	650	GORK	4	SF	0650.3	0651.2	1.7	55	15		
	1415	MANI	4	S/F	0650.4	0651	1.3	57.6	19.2		
	606	MANI	3	S	0650.5	0650.9	1.1	21.7	7.2		
	4995	MANI	3	S	0650.5	0651.4	3.4	47	15.7		
	950	GORK	1	S	0650.5	0651.4	2	3.4	1.7		
	3000	BERL	3	S	0650.5	0651.2	2.5	31			
	1470	BERL	3	S	0650.5	0651.5	2	22			
	9100	GORK	3	S	0650.6	0651.3	1.8	65	32		
	100	GORK	41	F	0652	0652.1	7.3	190			
	100	GORK			0652	0656.8		1600			
	237	TRST	41	F	0724.7	0724.8	.3	125			D
	1415	MANI	4	S/F	0738.5	0738.6	1.5	51.8	17.3		
	237	TRST			0824.6	0837.2		265			D
	237	TRST			0824.6	0837		190			D
	237	TRST			0824.6	0832.7		210			D
	237	TRST	42	SER	0824.6	0828.5	27.3	195			D
	237	TRST			0824.6	0848.2		450			D
	237	TRST			0824.6	0848		425			D
	237	TRST			0824.6	0846		350			D
	9100	GORK	20	GRF	0840.8	0910.5	55	16	5.5		
	100	GORK			1039	1046.7		110			
	100	GORK	41	F	1039	1039.4	9.7	220			
	100	GORK			1039	1048.3		220			
	33	UPIC	4	S/F	1039.2	1039.4	.6				
	29	UPIC	4	S/F	1039.3	1039.6	.5				
	33	UPIC	4	S/F	1046.7	1046.7	.4				
	29	UPIC	4	S/F	1046.8	1046.9	.5				
	113	POTS	45	C	1212.7	1213.2	1.4	150	5		
	9400	HUAN		S	1226	1250	66	8.1	4.8		D
	7000	SAOP	4	S/F	1236.4	1246	23.5				20L
	9100	ARCE	21	GRF	1243.9	1249.7	38				
	10400	BERN	3		1244.4	1246	4	10			
	8400	BERN	3		1244.4	1246	4	19			
	8900	BERN	3		1244.4	1246	4	18			
	9500	BERL	20	GRF	1244	1246	69	15			
	9400	HUAN		S	1245	1246.1	2.2	9.4	5.7		R
	9100	ARCE	1	S	1245.2	1246.5	2				
	2800	OTTA	1	S	1245	1246.8	7	3.4	1.5		
	9100	ARCE	4	S/F	1359.5	1400.1	1				
	2800	OTTA	240	R	1435	1540	65	6.6	3.3		
	7000	SAOP	21	GRF	1442.8		12				D
	7000	SAOP	1	S	1451.7E	1451.7	8				38L
	2800	OTTA	20	GRF	1840	1935	100	4.2	2.1		
	9400	HUAN		S	2100.3	2127.2	35.5	23.8	12.4		R
	2800	OTTA	21	GRF	2105	2150	130	6.6	3.6		
	2800	OTTA	40	F	2108	2101	3.2	24			
	1420	BCUL	20	GRF	2326 E	2332.5	13 D	24	8		
	35000	NAGO	5	S	2330	2335	9	95			
	4995	BCUL	4	SF	2331	2335 U	9	114	38		
	2695	MANI	4	S/F	2332.2	2334	7.6	65.6	21.8		
	4995	MANI	4	S/F	2332.4	2335.2	7.3	119.7	39.9		
	2695	BOUL			2332.5E	2335.5		91	30		
	2695	BCUL	45	C	2332.5E	2334	11 D	91	30		
	8800	MANI	4	S/F	2332.7	2335.1	7.3	182.4	60.8		
	2695	PENT	4	S/F	2332	2334.8	12	68	22.6		
	1415	MANI	4	S/F	2333.8	2334	.5	16.9	5.6		
	35000	NAGO	29	PBI	2339	2345	97	8			
15	200	GORK	44	NS	0427 E		390 E		5		
	127	TORN	44	NS	0740 E	1104.1	410 D	75	6		V=1
	260	ONDR	44	NS	0810 E		394 D	40			
	100	GORK	43	NS	0837		140		5		
	245	SGMR	44	NS	1100 E	1522.5	540 D	26.9			SWF
	410	SGMR	44	NS	1100 E	1608.3	540 D	72.9			SWF
	3100	GRIM	24	R	0636	0750		5			
	9100	GORK	20	GRF	0646.5	0659.9	26	11	4.5		
	930	BORD	41	F	0826.5	0826.5	1	42	2		
	100	GORK	41	F	0834.5	0834.8	2.3	80			
	100	GORK			0834.5	0836.3		220 D			
	29	UPIC	4	S/F	0835.3	0836.2	1.3				
	33	UPIC	4	S/F	0835.5	0836.1	1				
	202	IZMI	4	S/F	0835.7	0835.8	.6	110	60		
	113	POTS	45	C	0835.8	0836	1.2	500	50		
	536	ONDR	46	C	0900.5	0903	2.5	50			
	33	UPIC	45	C	0900.7	0903	2.8				
	29	UPIC	45	C	0900.8	0903.1	2.7				
	237	TRST	41	F	0902.1	0903.9	2	275			D
	1470	BERL	20	GRF	0920	0937	50	3			
	3000	BERL	22	GRF	0925	0940.7	35	14			

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	3100	CRIM		0930	0941		5			
	3100	CRIM	45 C	0930	0935	22	7	3		
	9500	BERL	22 GRF	0930	1029	159	22			
	10400	BERN	23	0931.1	1028.1	110	25			
	8400	BERN	23	0931.1	1028.1	110	24			
	9100	GORK	20 GRF	0932.6	1028.4U	92	30			
	100	GORK	46 C	1040	1040.9	2	230			
	33	UPIC	42 SER	1048.7	1106.1	62.2				
	29	UPIC	42 SER	1049	1106.3	62				
	100	GORK		1057.5	1059.1		225 D			
	100	GORK	45 C	1057.5	1058	3	225			
	9400	HUAN	S	1218.8	1422.6	152.5	6.4	1.4		O
	7000	SAOP	3 S	1603.6	1608.3	13				O
	9400	HLAN	S	1604	1610.3	14.7	4.8	3.4		O
	2800	OTTA	3 S	1607.5	1608.1	4.5	42	10		
	4995	BCUL	8 S	1607	1607.5	1	48	13		
	1420	BCUL	3 S	1607 E	1607.5	7 D	20	7		
	2695	BCUL	3 S	1608 E	1609	1.5D	16	5		
	2695	BCUL	29 PBI	1609.5	1609.5	3.5D	11	4		
	2800	OTTA	29 PBI	1612	1612	78	3.4	1.7		
	9400	HUAN	S	1740.8	1754.6	24.5	7.9	4.6		O
	9400	HUAN	S	1820.6	1843.5	37.6	14.3	7.1		O
	4995	BCUL	20 GRF	1822	1836	32	18	6		
	7000	SAOP	20 GRF	1829		14				O
	2800	OTTA	21 GRF	1829	1840	75	12.4	6.2		
	2800	OTTA	40 F	1830.5	1833.5	3	10.2			
	1420	BCUL	4 SF	1830.5E	1831.5	4 D	20	7		
	2800	OTTA	1 S	1949	1950	2	2.4	1.7		
	2800	OTTA	20 GRF	2005	2056	85	4.6	2.2		
16	200	GORK	44 NS	0430 E		510 E		5		
	100	GORK	44 NS	0431 E		47		5		
	260	ONDR	44 NS	0738 E		425 D	28			
	245	SGMR	44 NS	1101 E	1918.1	539 D	18			
	410	SGMR	44 NS	1101 E	1632.5	539 D	23			
	9100	GORK	20 GRF	0624.5	0627.2	21	28	7.5		
	3100	CRIM	1 S	0804.5	0805.5	1.5	4	1		
	650	GORK	4 SF	0847.3	0848	2.5	53	15		
	200	GORK	8 S	0848	0848.7	1.4	30 D			
	950	GORK	1 S	0848.2	0848.6	.9	4	2		
	9500	BERL	22 GRF	0937	0953.5	96	21			
	2650	DWIN	45 C	0940	0947	9	30	10		
	930	BORD	8 S	0951.9	0951.9	.4	79	1		
	202	IZMI	4 S/F	1035.9	1036	.6	250	90		
	2800	OTTA	1 S	1446.5	1448	10	2.2	1		
	245	SGMR	6 S	1650.5	1651.2	7.5	161.6	48.5		
	2800	OTTA	20 GRF	1650	1651.5	15	3	1.5		
	410	SGMR	6 S	1651.1	1654	6.9	79.2	23.8		
	686	SGMR	3 S	1651.1	1654.3	6.9	62.4	18.7		
	2800	OTTA	20 GRF	1710	1738	110	8.8	4.4		
	4995	BCUL	45 C	1735	1737	19	45	15		
	4995	BCUL		1735	1742.5		22	7		
	1420	BCUL	2 SF	1745 E	1745.5	1.5D	8	3		
	2800	OTTA	1 S	1951	1953	10	2.2	1.1		
	200	HIRA	44 NS	2055 E	0430	660 D	15	5		ML
	9400	HUAN	S	2141.7	2145.5	19	321	113.3		R
	2800	OTTA	47 GB	2142	2145.2	5	586	66		
	4995	BCUL	4 SF	2142	2145.5	19.5	462	154		
	500	HIRA	46 C	2144.2	2145.3	3	45	20		WR
	1420	BCUL	3 S	2144 E	2145.5	4.5D	309	103		
	2695	PENT	29 PBI	2148	2148	15	4.4	2.2		
17	200	GORK	44 NS	0430 E		510		5		
	202	IZMI	44 NS	0600		360	50			
	100	GORK	43 NS	0605		175		5		
	260	ONDR	44 NS	0734 E		442 D	64	12		
	127	TORN	44 NS	0740 E	0936	410 D	240	3.2		V=0
	410	SGHR	44 NS	1102 E	1640.3	538 D	182			
	245	SGHR	44 NS	1102 E	1332.9	538 D	488			
	1470	BERL	22 GRF	0648	0655.8	22	6.6			
	2950	GORK	20 GRF	0650.2	0656	15.5	11	5		
	9500	BERL	20 GRF	0653	0711	69	7.9			
	408	TRST	2 F/S	1017.5	1017.6	.2	84			
	234	POTS	45 C	1332.1	1332.7	1.1	420	100		
	237	TRST	41 F	1332.6	1332.8	.3	1260			O
	237	TRST	41 F	1405.8	1406.9	1.2	125			O
	9400	HUAN	S	1752.9	1814.2	37.7	6.9	2.7		O
	200	HIRA	44 NS	2055 E	0040	660 D	30	10		ML
	2695	PENT	240 R	2134	2136	2	2.6	1		
18	700	SYDN	40 F	0000.8	0001.8	1.7				
	1400	SYDN	2 S	0001.6	0001.8	.9				
	200	GORK	44 NS	0500 E		480 E		5		
	100	GORK	44 NS	0500		480 D		5		
	202	IZMI	44 NS	0600		360	50			

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	127	TORN	44	NS	0700 E	0910.8	450 D	110	6.5		V=1
	260	ONDR	44	NS	0730 E		426 D	84	11		
	410	SGMR	44	NS	1104 E	1126	536 D	52			3
	245	SGMR	44	NS	1104 E	1650.8	536 D	47.8			3
	5730	IRKU	20	GRF	0537	0546.3	23	25	14		
	237	TRST	41	F	1103.1	1103.2	.4	75			0
	2800	OTTA	1	S	1816.2	1816.8	1	2.2	1.1		
	2800	OTTA	1	S	2052	2053.5	3.5	1.6	.8		
	2695	PENT	1	S	2159.5	2201.5	5	6.2	2		
19	4995	MANI	4	S/F	0406.9	0407.8	8.3	95.2	31.7		
	5730	IRKU	45	C	0407.1	0407.7	10	11	2		
	5730	IRKU			0407.1	0408.4		7			
	5730	IRKU			0407.1	0408.3		9			
	5730	IRKU			0407.1	0409.1		3			
	5730	IRKU			0407.1	0408.6		5			
	2695	MANI	4	S/F	0407.4	0408.3	3.2	30.8	10.3		
	35000	NAGO	5	S	0407.5	0408.5	1.5	20			
	35000	NAGC	29	PBI	0409	0410	9	7			
	200	GORK	44	NS	0448 E		490 E		5		
	260	ONDR	44	NS	0720 E		422 D	15			
	410	SGMR	44	NS	1105 E	1348.7	535 D	11			3
	245	SGMR	44	NS	1105 E	1810.3	535 D	45			3
	9100	GORK	20	GRF	0714	0716.8	8	9	3		
	1470	BERL			0737	0743.4		3.1			
	1470	BERL	24	R	0737	0741.6	23	4.2			
	9500	BERL	24	R	0740	0749.4	35	30			
	3000	BERL	24	R	0740	0750.5	20	17			
	9500	BERL			0740	0750.5		30			
	10400	BERN	4		0748.1	0750.6	6.5	34			
	8400	BERN	4		0748.1	0750.6	6.5	33			
	9100	GORK	4	SF	0748.2	0751	7.9	32	16		
	3100	CRIM	1	S	0748.5	0750.5	5	13	4		
	2650	OWIN	3	S	0749	0751	4	10	5		
	10715	OWIN	3	S	0749	0749	4	20	10		
	3100	CRIM	1	S	0906	0906.5	1	3.5	1		
	9500	BERL	20	GRF	1147	1153.7	23	9.3			
	9400	HUAN		S	1150.7	1153.4	8.1	8.1	3.9		R
	3000	BERL	20	GRF	1150	1154	10	3.1			
	9100	GORK	1	S	1152.5	1153.8	4.3	10	5		
	2800	OTTA	21	GRF	1330	1500	150	8			
	606	SGMR	3	S	1352.2	1354	3.6	25	7.5		
	536	ONDR	4	S/F	1352.8	1354.2	2.5	38	6		
	2800	OTTA	1	S	1352	1354	4	2.8	1.4		
	410	SGMR	6	S	1353.7	1354.3	2.2	27	8.3		
	245	SGMR	6	S	1354	1355.2	1.6	8.2	2.5		
	9400	HUAN		S	1401.5	1430.2	45.6	6.4	3.2		0
	8400	BERN	3		1437.1	1437.7	7	24			
	8900	BERN	3		1437.1	1437.7	7	25			
	10400	BERN	3		1437.1	1437.7	7	12			
	9500	BERL	2	S/F	1437.2	1437.5	1.6	8.3			
	9400	HUAN		S	1437.2	1437.8	1.5	19.4	7.2		R
	9100	ARCE	1	S	1437.3	1437.8	1.8				
	3000	BERL	4	S/F	1437.5	1438	1.5	10			
	2800	OTTA	1	S	1437	1437.8	3	3.4	1.2		
	113	POTS	48	C	1451.4E	1459.9	8.9D	150			
	2800	OTTA	1	S	1755.5	1756.2	1.5	2.8	1.4		
	606	SGMR	45	C	1856.6	1900		63.2			
	606	SGMR	45	C	1856.6	1856.9	3.8	82.8	25		
	245	SGMR	6	S	1900	1900.4	.5	134	40		
	410	SGMR	6	S	1900.2	1900.4	.6	178	53		
	245	SGMR	6	S	1928.7	1929.5	1.2	77.5	23		
	410	SGMR	6	S	1929	1929.5	1	118	35		
	606	SGMR	3	S	1929.1	1929.2	.4	107	42.8		
	2695	PENT	240	R	2020	2110	50	3.2	1.6		
20	200	GORK	44	NS	0436 E		490 E		5		
	260	ONDR	44	NS	0734 E		411 D	20	6		
	127	TORN	43	NS	1040 U	1223.1	230 D	16	3		V=0
	410	SGMR	44	NS	1106 E	1256.6	534 D	11			3G
	245	SGMR	44	NS	1106 E	1337.5	534 D	59.8			3G
	100	GORK	43	NS	1204		47		5		
	5730	IRKU	2	S	0436	0441.2	6	23			
	5730	IRKU	29	PBI	0442	0458	28	8			
	9100	GORK	20	GRF	0700.9	0833	218	33	10		
	536	ONDR	42	SER	0911.3	0938.2	40	43			
	2950	GORK	20	GRF	1040.7	1045	75	10	5		
	7000	SAOP	3	S	1135	1136.3	13				0
	10400	BERN	3		1135.5	1136.2	2.5	9			
	8400	BERN	3		1135.5	1136.2	2.5	12			
	8900	BERN	3		1135.5	1136.2	2.5	10			
	9100	GORK	1	S	1136	1136.3	1.3	13	6.5		
	9100	ARCE	1	S	1136	1136.6	2.3				
	200	GORK	27	RF	1145	1220	63	30			
	234	POTS	45	C	1147	1221	103	26	7		

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	113	POTS	45 C	1156	1240	89	10	3		
	10400	BERN	3	1228.3	1234.9	13	9			
	8400	BERN	3	1228.3	1234.9	13	13			
	8900	BERN	3	1228.3	1234.9	13	12			
	9100	ARCE	1 S	1234	1235.1	5.6				
	536	ONDR	41 F	1250	1252.8	6	45			
	2800	OTTA	8 S	1609.5	1609.8	.5	2.4	1.2		
	930	BORC	45 C	1609	1609.6	1	37	2		
	2800	OTTA	1 S	1644.5	1645	1	2	1		
	2800	OTTA	20 GRF	1656	1712	70	3.2	1.8		
	2800	OTTA	20 GRF	1830	1840	95	2.8	1.4		
21	5730	IRKU	1 S	0226	0231	13	7	2.5		
	5730	IRKU	45 C	0244	0246	20	2	6		
	5730	IRKU		0244	0250.7		7			
	5730	IRKU		0244	0249.4		12			
	5730	IRKU		0244	0255		12			
	5730	IRKU		0244	0251.8		6.5			
	200	GORK	44 NS	0457 E		360 E		5		
	260	ONDR	44 NS	0730 E		425 D	15			
	410	SGMR	44 NS	1107 E	1729.1	533 D	31.5			3G
	245	SGMR	44 NS	1107 E	1640	533 D	82.7			3G
	2950	GORK	1 S	0556.5	0557.6	2.1	5.4	2.7		
	9100	GORK	20 GRF	0557.3	0602.2	13.6	13	5		
	5730	IRKU		0557	0602.6		7			
	5730	IRKU	49 C	0557	0557.7	13	8.5	4		
	202	IZMI	8 S	0734.5	0734.5	.4	360	150		
	1470	BERL	4 S/F	1150	1150.5	1.5	13			
	2800	OTTA	23 GRF	1328	1422	120	7	3.5		
	2800	OTTA	1 S	1357	1357.5	3	2.8	1.2		
	2800	OTTA	46F C	1540	1601	7	58	17		
	9400	HUAN	S	1553	1611.2	62.5	16.3	9.5		R
	4995	BCUL	45 C	1555	1601	7.5	46	15		
	7000	SAOP	46 C	1556	1601.1	68				14L
	10400	BERN	46	1556.5	1601	10	40			
	8400	BERN	46	1556.5	1601	10	60			
	8900	BERN	46	1556.5	1601	10	57			
	245	SGMR	6 S	1557.1	1601	10.1	120	48		3G
	2695	BCUL	28 PRE	1557.5E	1558.5U	1.5D	15	5		
	410	SGMR	6 S	1557.7	1601.1	9.5	61.8	24.7		3G
	930	BORC	46 C	1557	1558.7	25	111	5		
	9400	HUAN	F	1558.1	1601.1	4.5	45.7	20.2		R
	606	SGMR	3 S	1558.4	1600	10.6	51.5	20.6		3G
	2695	BCUL	45 C	1559 E	1600	4 D	127	42		
	2695	BCUL		1559 E	1601.5		127	42		
	2695	BCUL	29 PBI	1603	1603	1 D	21	7		
	2800	OTTA	30 PBI	1603	1603	60	11.6	5.8		
	9400	HUAN	S	1605	1606.7	2.7	8.2	3.9		R
	2800	OTTA	1 S	1606	1607	2	2.4	1.2		
	200	HIRA	44 NS	2055 E	0600	660 D	35	5		ML
22	200	GORK	44 NS	0500 E		480 E		5		
	100	GORK	43 NS	0553		208		10		
	100	HIRA	43 NS	0556	0610	120 D	50	30		
	127	TORN	44 NS	0610 E	0824.3	500 D	78	3.4		V=1
	260	ONDR	44 NS	0756 E		404 D	20			
	245	SGMR	44 NS	1109 E	1801.8	531 D	69.5			3G
	410	SGMR	44 NS	1109 E	1412.6	531 D	7			3G
	200	GORK	27 RF	0551	0739	219	45			
	650	GORK	22 GRF	0551.8	0605.3	56	13	6		
	500	HIRA	27 RF	0552	0611	48	25	15		SR
	100	GORK	46 C	0822.8	0824	3.5	200			
	950	GORK	1 S	0830	0830.4	.6	5	2.5		
	650	GORK	1 S	0830.2	0830.3	.6	2.5			
	200	GORK	8 S	0830.2	0830.4	.6	30 D			
	237	TRST	41 F	0922.2	0922.2	1.2	100			5R
	100	GORK		0959	1001.3		200			
	100	GORK	45 C	0959	0959.9	3 U	200			
	237	TRST	41 F	1058.1	1058.9	.9	170			4R
	9400	HUAN	S	1357.5	1402.8	11.1	13	2.7		R
	2800	OTTA	20 GRF	1420	1510	110	1.8	1.2		
	2800	OTTA	20 GRF	1805	1810	15	1.4	.7		
	2800	OTTA	20 GRF	1835	1840	15	1.8	.9		
	2800	OTTA	1 S	1937.5	1937.8	1.5	1.8	.9		
	2695	PENT	20 GRF	2050	2255	110	4.8	2.2		
23	1400	SYDN	3 S	0322.8	0323.9	1.2				
	2695	MANI	3 S	0323	0324.1	1.7	11.6	3.8		
	700	SYDN	2 S	0323.6	0323.8	.9				
	1415	MANI	1 S	0323.7	0324	.7	10.6	3.6		
	200	GORK	44 NS	0500 E		480 E		5		
	127	TORN	44 NS	0610 E	0703.9	130 U	60			AT SUNRISE
	260	ONDR	44 NS	0730 E		420 D	84	6		
	245	SGMR	44 NS	1110 E	1916.7	530 D	290			3G
	410	SGMR	44 NS	1110 E	1700.5	530 D	67.2			3G

SOLAR RADIO EMISSION
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OCT 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	200	HIRA	44 NS	2100 E	2245	300 D	20	5		MR
	237	TRST	41 F	0847.2	0847.3	.6	380			3R
	234	POTS	45 C	0847.2	0847.4	.8	275	45		
	536	ONDR	42 SER	0847.5	0856	14	15			
	237	TRST	41 F	0856.1	0856.2	.4	95			0
	3100	CRIM	25 R	0939	1200		10			
	237	TRST		0941.5	0949.8		370			0
	237	TRST		0941.5	0946.4		185			2L
	237	TRST		0941.5	0945.8		940			0
	237	TRST	42 SER	0941.5	0941.5	11.9	80			0
	237	TRST		0941.5	0952.6		270			0
	408	TRST	42 SER	0944.5	0946	8	62			
	234	POTS	48 C	0945.6	0946.1	8.7	350	5		
	9500	BERL	1 S	0947	0947.2	.4	6.6			
	1470	BERL	3 S	0947.5	0947.8	1	7			
	1470	BERL	1 S	0955	0956	2	2.3			
	3000	BERL	1 S	0955.4	0956.4	1.6	4.1			
	536	ONDR	4 S/F	0955	0955.7	1.5	59			
	113	POTS	2 S/F	1026.1	1026.8	1.5	280	15		
	237	TRST	5 S	1027	1027	.1	85	24		0
	100	GORK	45 C	1027	1027.3	1.1	190			
	100	GORK		1027	1027.8		190			
	2950	GORK	1 S	1037	1039	3.5	5.8	2.8		
	113	POTS	2 S/F	1116.2	1117.2	2	2100	150		
	200	GORK	8 S	1117.2	1117.7	1.1	50 D			
	202	IZMI	4 S/F	1117.2	1117.2	.8	255	100		
	237	TRST	41 F	1117.3	1117.6	.6	195			17L
	29	UPIC	4 S/F	1117.4	1117.8	.9				
	33	UPIC	4 S/F	1117.4	1117.5	.9				
	100	GORK	45 C	1117.5	1117.7	1	230 D			
	100	GORK		1117.5	1117.9		230 D			
	3100	CRIM	1 S	1244.5	1246	4	10	3		
	536	ONDR	2 S/F	1245	1246.2	2	11			
	2800	OTTA	1 S	1246	1246.2	1	5.2	2.6		
	2800	OTTA	2 S/F	1657	1701	7	3.4			
	2800	OTTA	20 GRF	1940	1945	20	2.2	1.1		
	100	HIRA	42 SER	2109	2112	13	500			SL
	2695	PENT	20 GRF	2220	2225	15	2	1		
24	3100	CRIM	1 S	0607	0608	1.5	17	6		
	5730	IRKU	2 S	0607	0608.1	1.5	17	6		
	2950	GORK	1 S	0607.8	0608.1	1.5	12	6		
	9100	GORK	1 S	0608	0608.1	.9	5.6	2.5		
	5730	IRKU	29 PBI	0608.5	0614	13.5	3			
	260	ONDR	44 NS	0730 E		415 D	26			
	127	TORN	44 NS	0810 E	1400 U	380 D		5		V=0
	245	SGMR	44 NS	1111 E	1804.5	529 D	89.9			
	410	SGMR	44 NS	1111 E	1514.2	529 D	10			
	2800	OTTA	1 S	1329	1329.2	2	2.6	1		
	1420	BOUL	2 SF	1648.5	1650	2.5	4	1		
	2800	OTTA	22 GRF	1735	1800	30	4	1.9		
	1420	BOUL	1 S	1915.5	1916.5	2	3	1		
	2800	OTTA	21 GRF	2014	2110	155	3.6	1.9		
	2695	PENT	1 S	2015	2016	1.5	4.4	2.2		
	100	HIRA	44 NS	2100 E	2335	330 D	40	25		ML
	200	HIRA	43 NS	2215	2300	315 D	60	15		MR
25	260	ONDR	44 NS	0730 E		407 D	50			
	245	SGMR	44 NS	1112 E	1526.7	528 D	20			
	410	SGMR	44 NS	1112 E	1606.3	528 D	9.5			
	234	POTS	C	0741.3	0741.4	1	190	40		
	127	TORN	40 F	0950 U	1023.6	65 U	8.2	1		
	113	POTS	F	1043.6	1043.9	5.5	200	5		
	3100	CRIM	1	1046.5	1047	1	11	4		
	260	ONDR	8 S	1048.3	1048.3	.5	185			
	237	TRST	41 F	1048.5	1048.7	.6	535			3L
	234	POTS	C	1048.5	1048.7	.6	110	30		
	9100	GORK	1 S	1147.2	1147.5	1.2	8.7	4		
	930	BORO	41 F	1155	1155.3	4	36	2		
	1470	BERL	1	1157	1157.5	1	4.8			
	245	SGMR	6 S	1211.1	1212.2	1.5	116	34.8		
	2800	OTTA	40 F	1420.5	1422	4.5	17			
	237	TRST	41 F	1517.5	1517.7	.5	2465			4L
	2800	OTTA	21 GRF	1805	1840	135	3	1.6		
	2800	OTTA	1 S	1811.8	1812.1	2.5	2	1		
	410	SGMR	6 S	1854.6	1854.9	1.3	28.6	11.4		
	245	SGMR	6 S	1854.6	1855	1.1	184	73.6		
26	237	TRST	5 S	0859.6	0859.6	.1	75	22		4R
	260	ONDR	44 NS	0725 E		430 D	16			
	127	TORN	44 NS	0800 E	1020.9	400 D	25	3.7		V=0
	245	SGMR	44 NS	1113 E	1839.4	527 D	26.2			
	237	TRST	5 S	0900.2	0900.2	.1	130	42		3R
	237	TRST	41 F	1450.2	1450.3	.1	385			0
	1420	BOUL	2 SF	1930.5	1933	3	6	2		

SOLAR RADIO EMISSION
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OCTOBER 1978

OCT 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
27	200	HIRA	43 NS	0210	0345	210 D	40	5		MR
	100	HIRA	43 NS	0300	0348	290 D	200	50		SR
	100	GORK	44 NS	0521 E		459 E		15		
	200	GORK	44 NS	0521 E		460 E		10		
	127	TORN	44 NS	0650 E	0914.6	470 D	380	20		V=2
	260	ONDR	44 NS	0746 E		404 D	51	10		
	202	IZMI	43 NS	0815		120	200			
	245	SGHR	44 NS	1115 E	1339.2	525 D	118			
	500	HIRA	27 RF	0300	0347	120	15	6		SR
	950	GORK	3 S	0530.3	0530.6	.9	8.5	4		
	9100	ARCE	8 S	0823.5	0823.6	.6				
	9100	ARCE	22 GRF	0824.6	0853	99				
	113	POTS	S	1226.1	1226.3	.5	300	100		
	2800	OTTA	23 GRF	1715	1720	150	6.6	3		
	2800	OTTA	1 S	1720	1720.1	2	2.6	1.3		
	2800	OTTA	1 S	2034	2035.2	6	3	1.5		
	200	HIRA	44 NS	2100 E	0240	540 D	70	30		MR
	2695	PENT	20 GRF	2225	2229	35	3.6			
28	200	GORK	44 NS	0500 E		60		10		
	127	TORN	44 NS	0650 E	1200.8	470 D	18	2.5		V=0
	260	ONDR	44 NS	0730 E		420 D	27	3		
	410	SGHR	44 NS	1116 E	1649.4	524 D	32			
	245	SGHR	44 NS	1116 E	1428.8	524 D	82.4			
	113	POTS	C	0713.6	0714.1	1	100	15		
	3000	BERL	1	0936.5	0937.5	6	5.4			
	202	IZMI	42 SER	1105	1132	55	270			
	234	POTS	C	1431	1431.1	.6	330	50		
	7000	SAOP	46 C	1518.5	1601	112				6R
	4995	BCUL	45 C	1555.5	1600.5	8.5	73	24		
	15400	SGHR	3 S	1557.2	1603.1	7.3	34	10.2		SWF
	2800	OTTA	4 S/F	1557.2	1601	9.8	32.4	10.8		
	4995	SGHR	3 S	1557.4	1600.4	7.3	76.9	23.1		SWF
	2695	SGHR	3 S	1557.7	1600.4	7.2	45.9	13.8		SWF
	9400	HUAN	F	1558.4	1603	15.4	62.3	20.6		R
	8800	SGHR	3 S	1559.3	1603.2	5.2	101.6	30.5		SWF
	2800	OTTA	29 PBI	1607	1607	160	5.2	2.2		
	2695	PENT	21 GRF	2007	2120	170	3	2		
	4995	BCUL	4 SF	2010	2010.5	2	26	9		
	1420	BOUL	1 S	2010	2011	2	3	1		
	2695	PENT	3 S	2011	2011.5	2	15.6	5.6		
29	127	TORN	44 NS	0650 E	0846.1	430 D	9	1.7		V=0
	260	ONDR	44 NS	0950 E		280 D	19			
	245	SGHR	44 NS	1117 E	1454.9	523 D	60.2			
	2800	OTTA	20 GRF	1310	1330	90	4.6	2.6		
	3000	BERL	3	1310	1321.5	40	5.5			
	1470	BERL	3 F	1312	1318.8	23	8.3			
	536	ONDR	45 C	1315.5	1318.3	8	32	11		
	9500	BERL	3	1315	1320.3	25	6.8			
	410	SGHR	7 C	1317.5	1321.3		9.8			
	410	SGHR	7 C	1317.5	1319.1	6.5	14	5.6		
	606	SGHR	45 C	1317.5	1320.5		32.5			
	606	SGHR	45 C	1317.5	1318.3	6	60.5	24.2		
	245	SGHR	7 C	1317.5	1323		82.4			
	245	SGHR	7 C	1317.5	1318.8	6.5	20.3	33		
	808	ONDR	45 C	1317	1318	7	68	19		
	938	BORC	45 C	1317	1318.7	7	42	5		
	2800	OTTA	20 GRF	1623	1640	100	1.6	1		
30	260	ONDR	4 S/F	0901	0903.8	4	33	2.3		
	260	ONDR	42 SER	0942.7	0942.7	9	32			
	9100	ARCE	8 S	1307.1	1307.3	.8				
	245	SGHR	44 NS	1735	1751	145 D	35.9			3G
	9400	HUAN	S	1935.5	1935.8	1.2	19.3	6.7		D
	2695	PENT	1 S	2118.9	2119	1	5.2	2.6		
31	5730	IRKU		0455	0503.1		12.5			
	5730	IRKU	45 C	0455	0501.4	15	17			
	3100	CRIM	41	0731	0736.5	6	2	1		
	808	ONDR	2 S/F	0902	0904.5	6	30	12.5		
	1470	BERL	2 F	0903	0905	5	13			
	3000	BERL	2 F	0904	0906.1	4	13			
	9500	BERL	3	0904	0918.5	136	7.8			
	2650	OWIN	45 C	0904	0905	4	20	10		
	930	BORC	45 C	0904	0904.9	4	31	15		
	127	TORN	43 NS	0912	1142.3	230 U	110	2.5		V=1
	100	GORK	43 NS	0921		159		5		
	260	ONDR	43 NS	0924		196	34	5		
	200	GORK	43 NS	0930		180		5		
	245	SGHR	44 NS	1120 E	1516	520 D				
	9100	ARCE	1 S	1016.5	1016.9	1				

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OCT 1978	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	127	TORN	48	C	1023.2	1026.4	6.7	260	41		
	113	PGTS		C	1023.3	1028.3	7.3	250	25		
	29	UPIC	48	C	1023.4	1026.7	8.2				
	33	UPIC	48	C	1023.4	1026.3	7.5				
	228	HARS	45	C	1023.5	1027.5	4.5	110	30		
	100	GORK	46	C	1023.5		7.5	180 D			
	100	GORK	46	C	1040.8	1041.3	1.3	190			
	9400	HUAN		S	1518.8	1519.3	1.9	9.2	6.4		L
	245	SGMR	6	S	1816.3	1816.4	.3	13.1	3.9		
	410	SGMR	6	S	1816.5	1816.8	.4	9.2	2.7		
	2695	PENT	20	GRF	1928	1929	22	2.4	1.2		

Reports received from the following observatories:

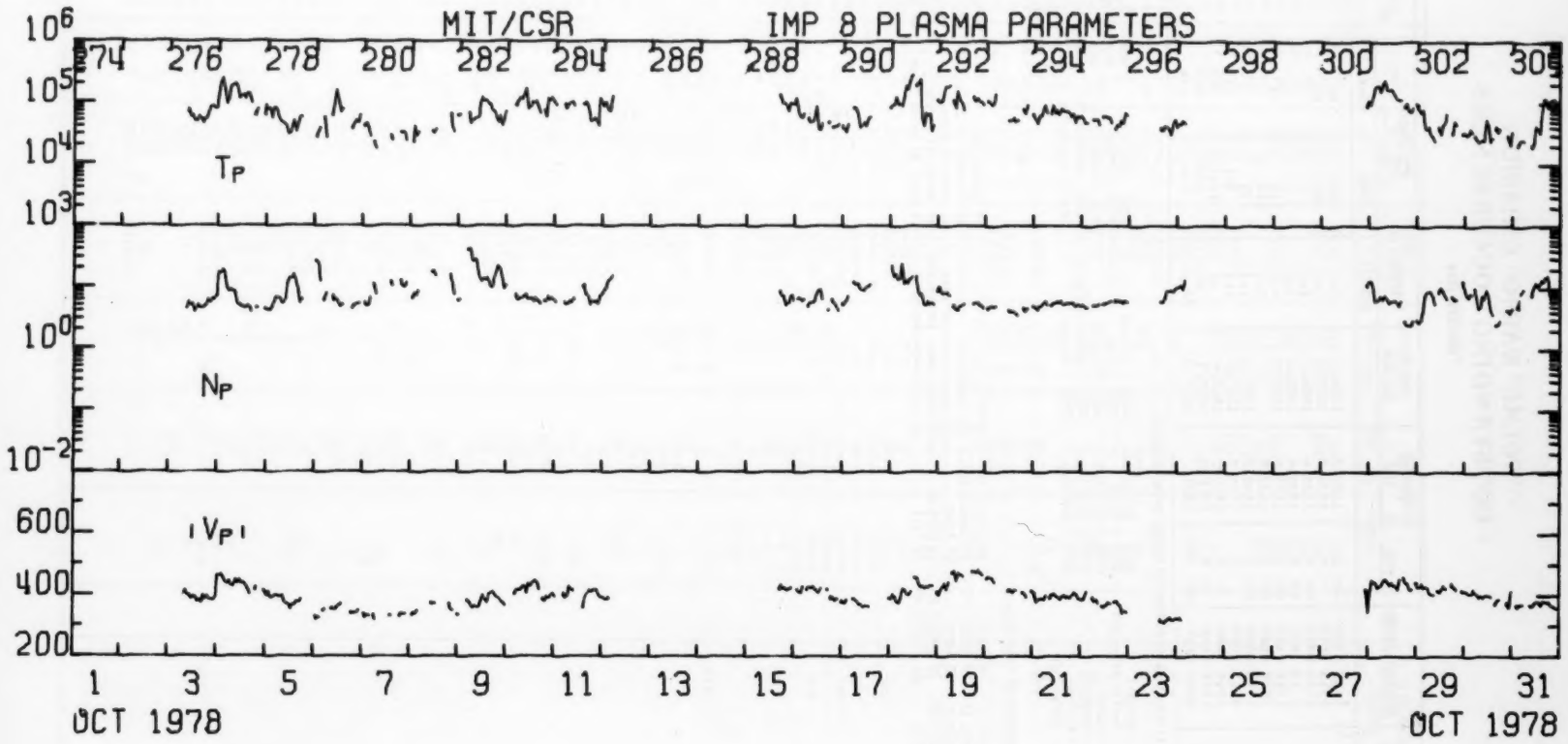
ARCE = Arcetri
BERL = Berlin-Adlershof
BERN = Berne
BORD = Bordeaux
BOUL = Boulder
CRIM = Simferopol
DWIN = Dwingeloo
GORK = Gorky
HARS = Harestua
HIRA = Hiraiso
HUAN = Huancayo
IRKU = Irkutsk
KIEV = Kiev
MANI = Manila
MCMA = McMath-Hulbert
NAGO = Nagoya
ONDR = Ondrejov
OTTA = Ottawa
PENT = Penticton
POTS = Potsdam
SAOP = Sao Paulo
SGMR = Sagamore Hill
SYDN = Sydney
TORN = Torun
TYKW = Toyokawa
TRST = Trieste
VORO = Voroshilov (Ussurisk)

Explanation of Type Code:

1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise Storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

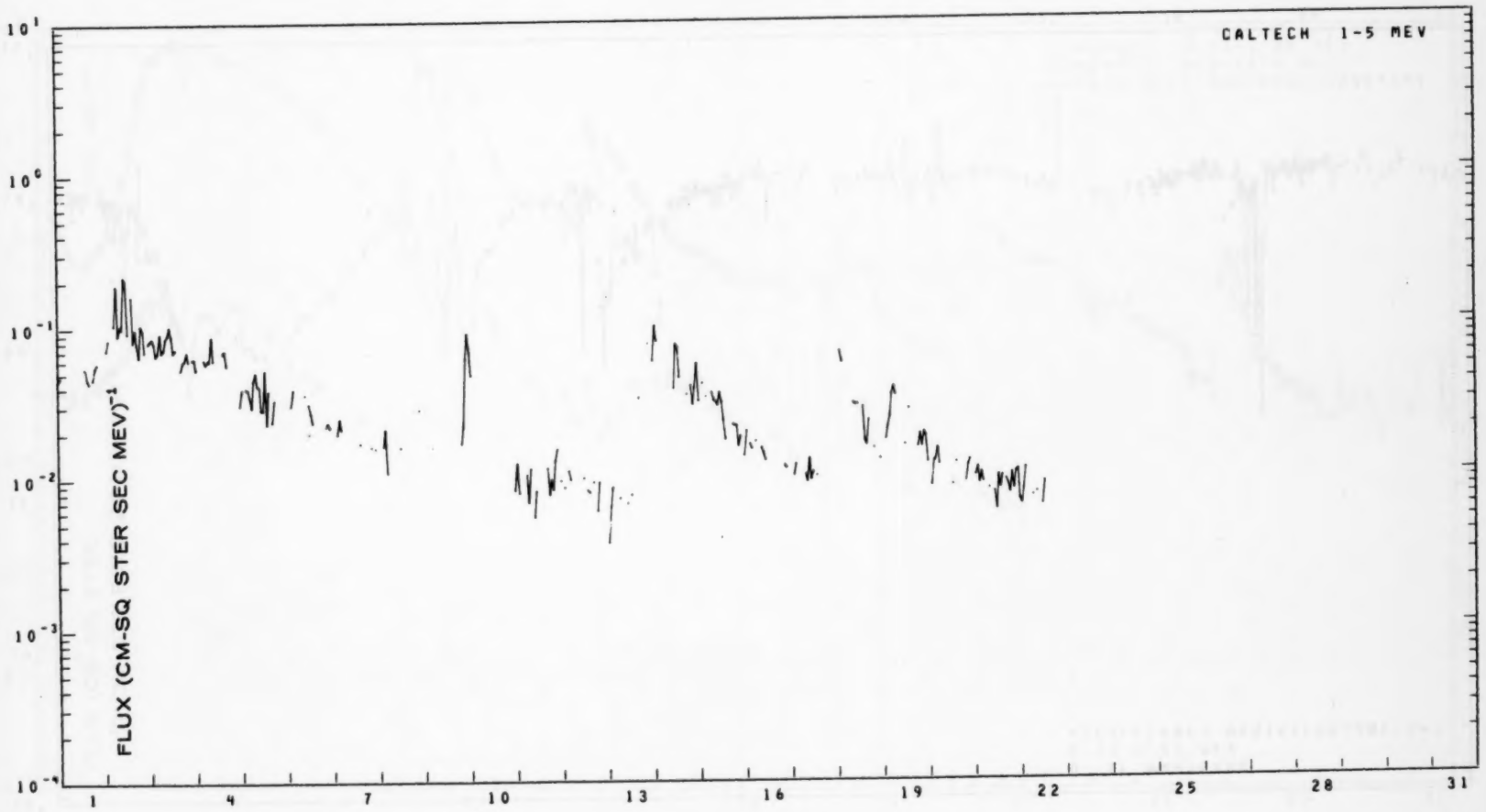
IMP 7 AND 8 SOLAR WIND PLASMA

OCTOBER 1978



IMP 7 AND 8 ELECTRONS

OCTOBER 1978



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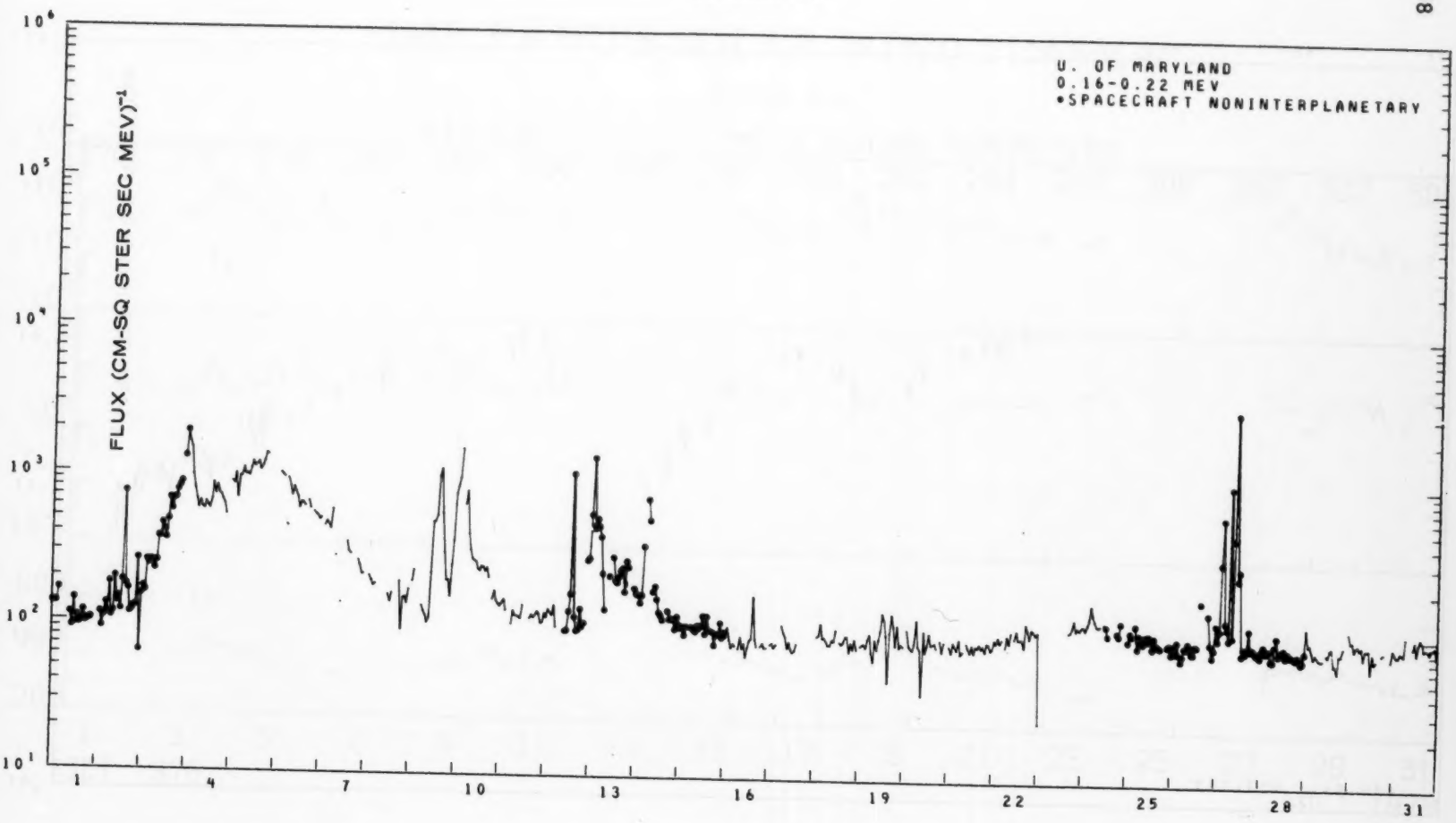
Oct 78

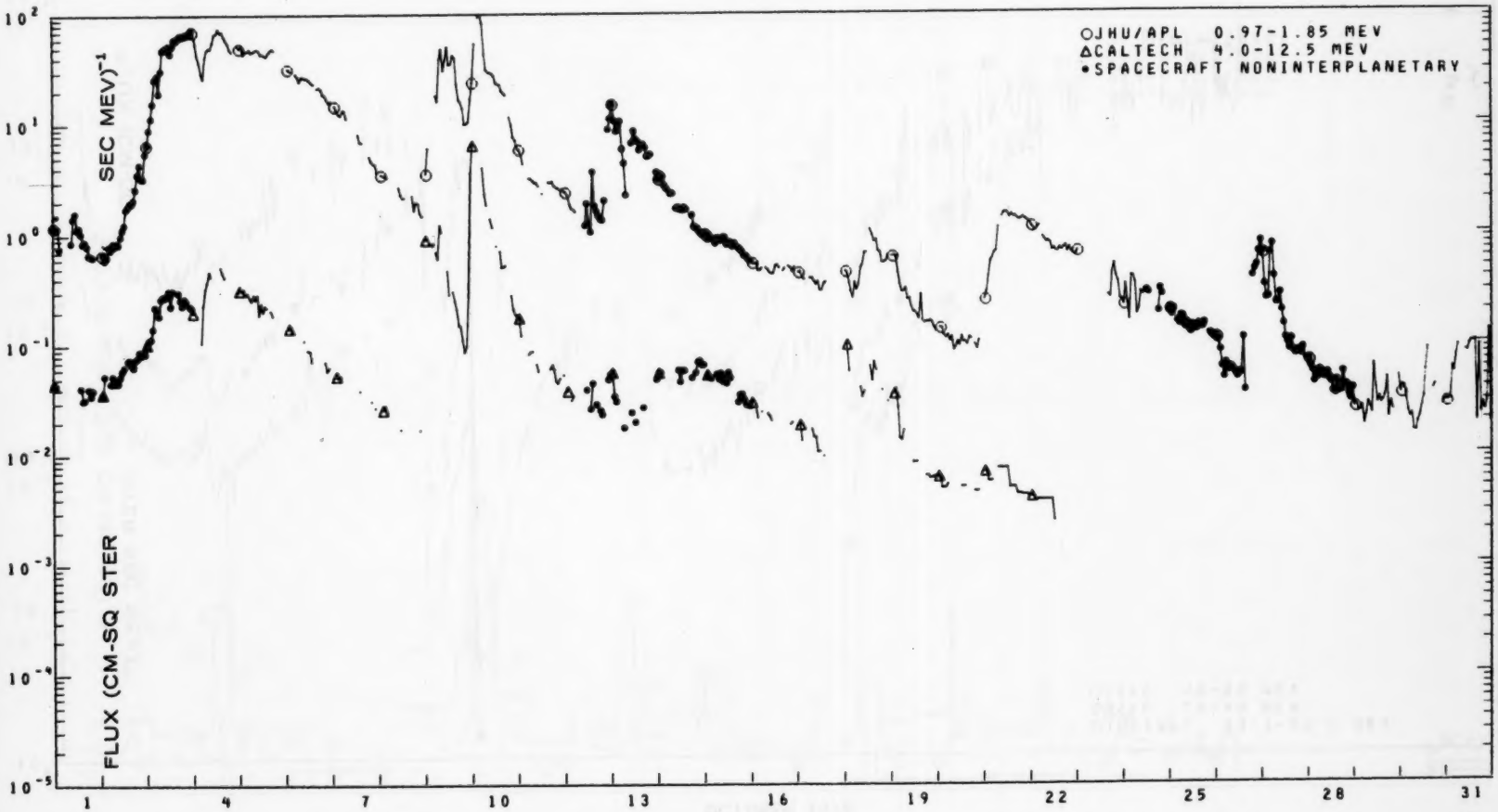
IMP 7 AND 8 LOW ENERGY PROTONS

OCTOBER 1978



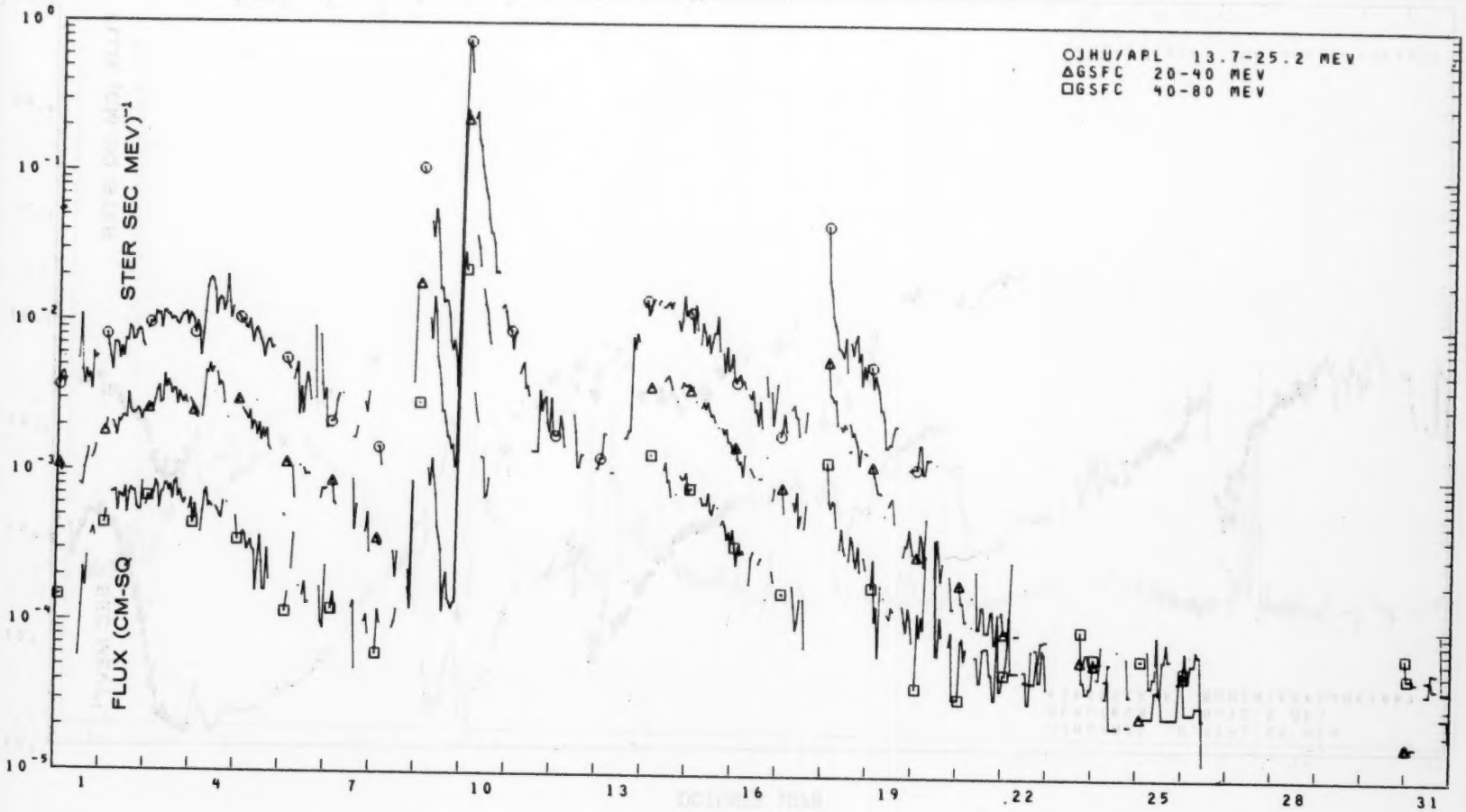
IMP 7 AND 8 INTERMEDIATE ENERGY PROTONS

OCTOBER 1978



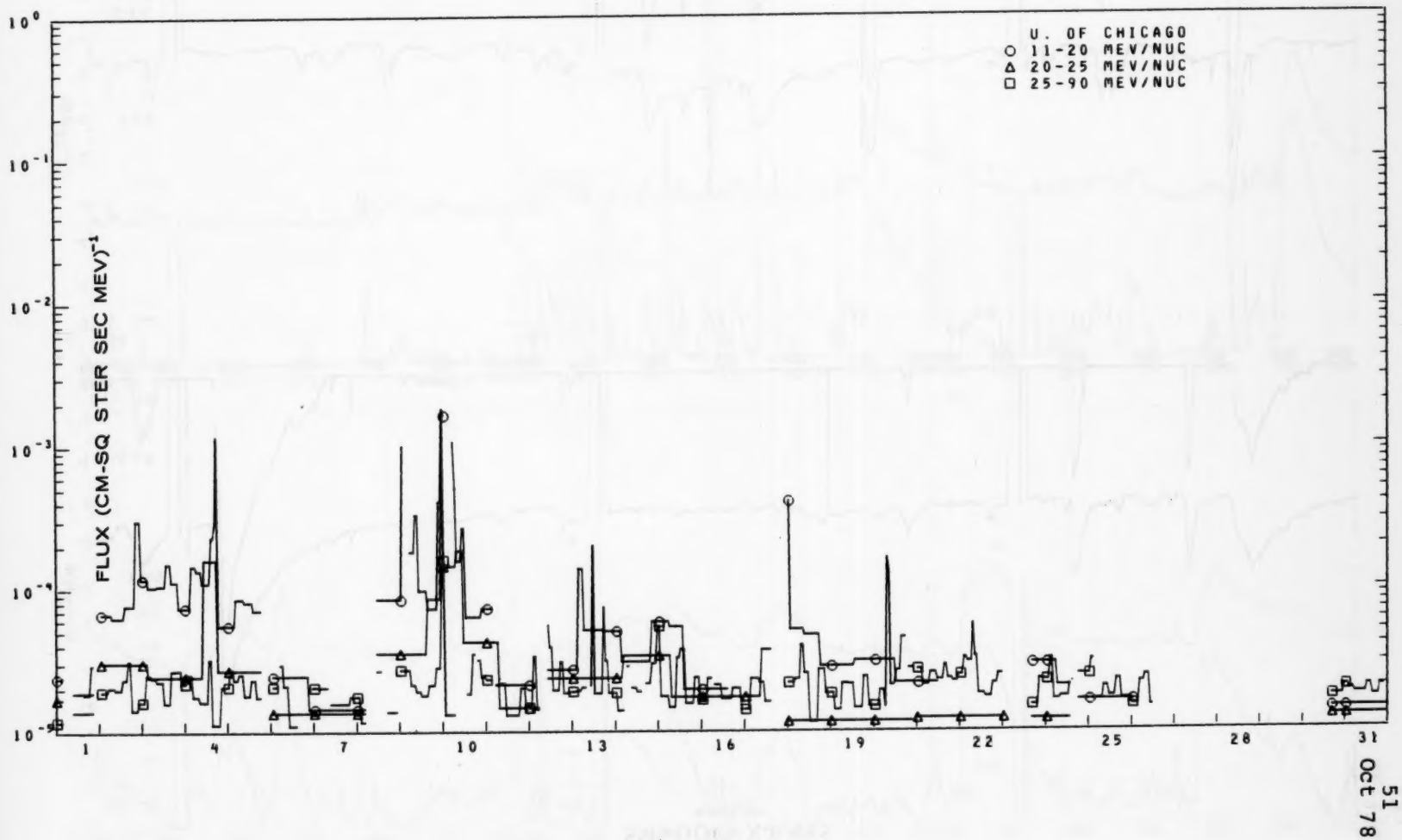
IMP 7 AND 8 HIGH ENERGY PROTONS

OCTOBER 1978



IMP 7 AND 8 ALPHA PARTICLES

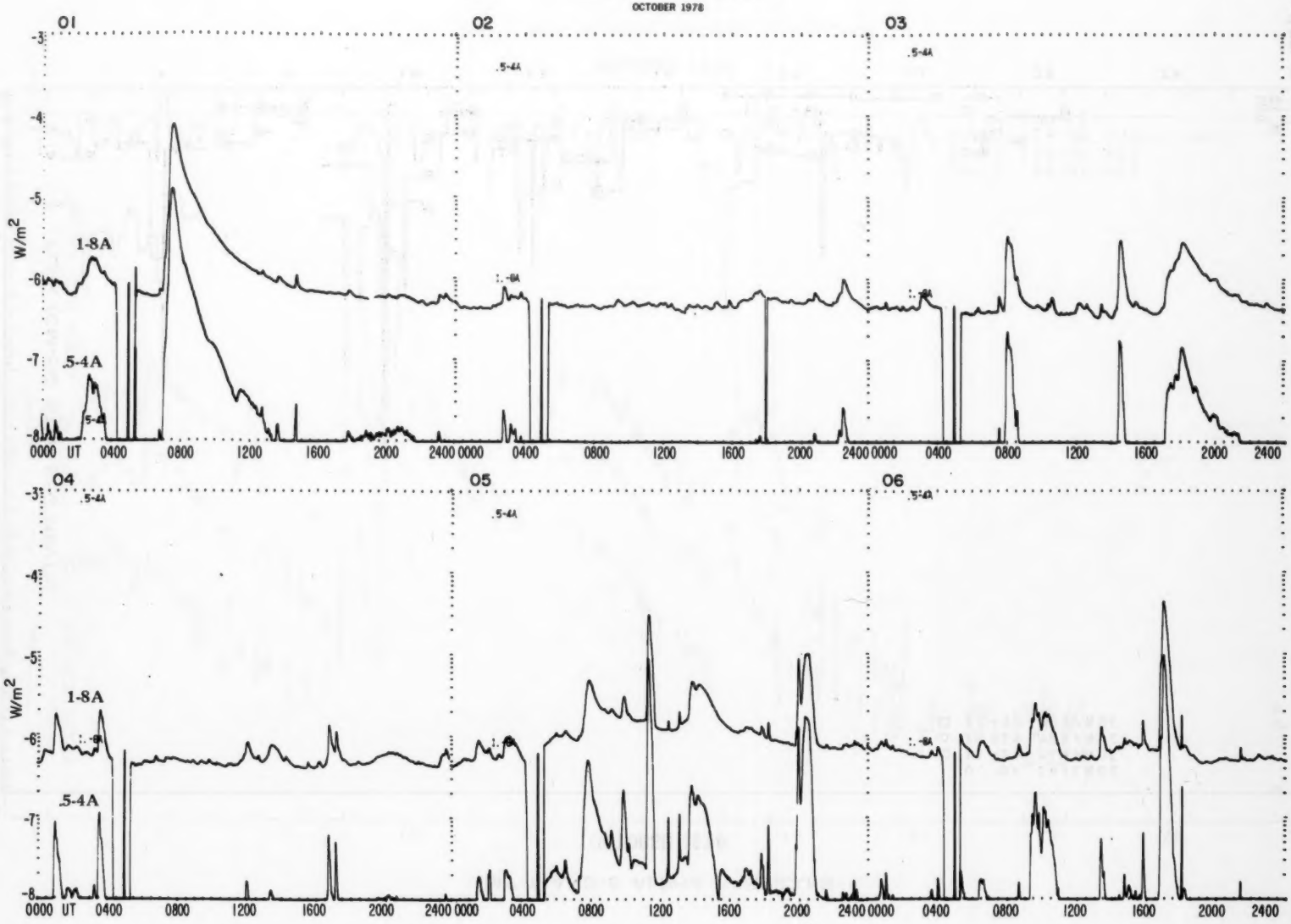
OCTOBER 1978

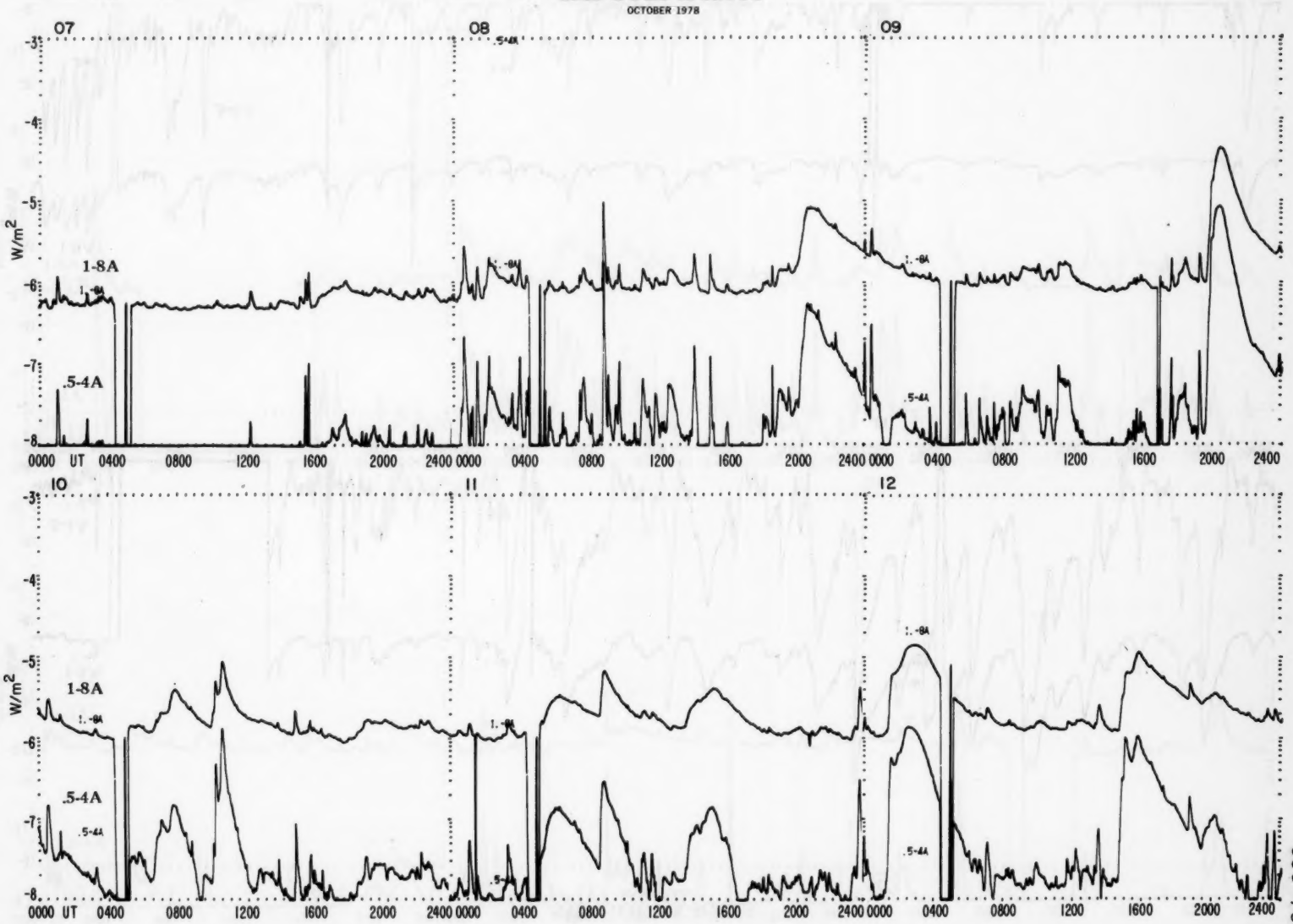


51
Oct 78

SMS-GOES X-RAYS

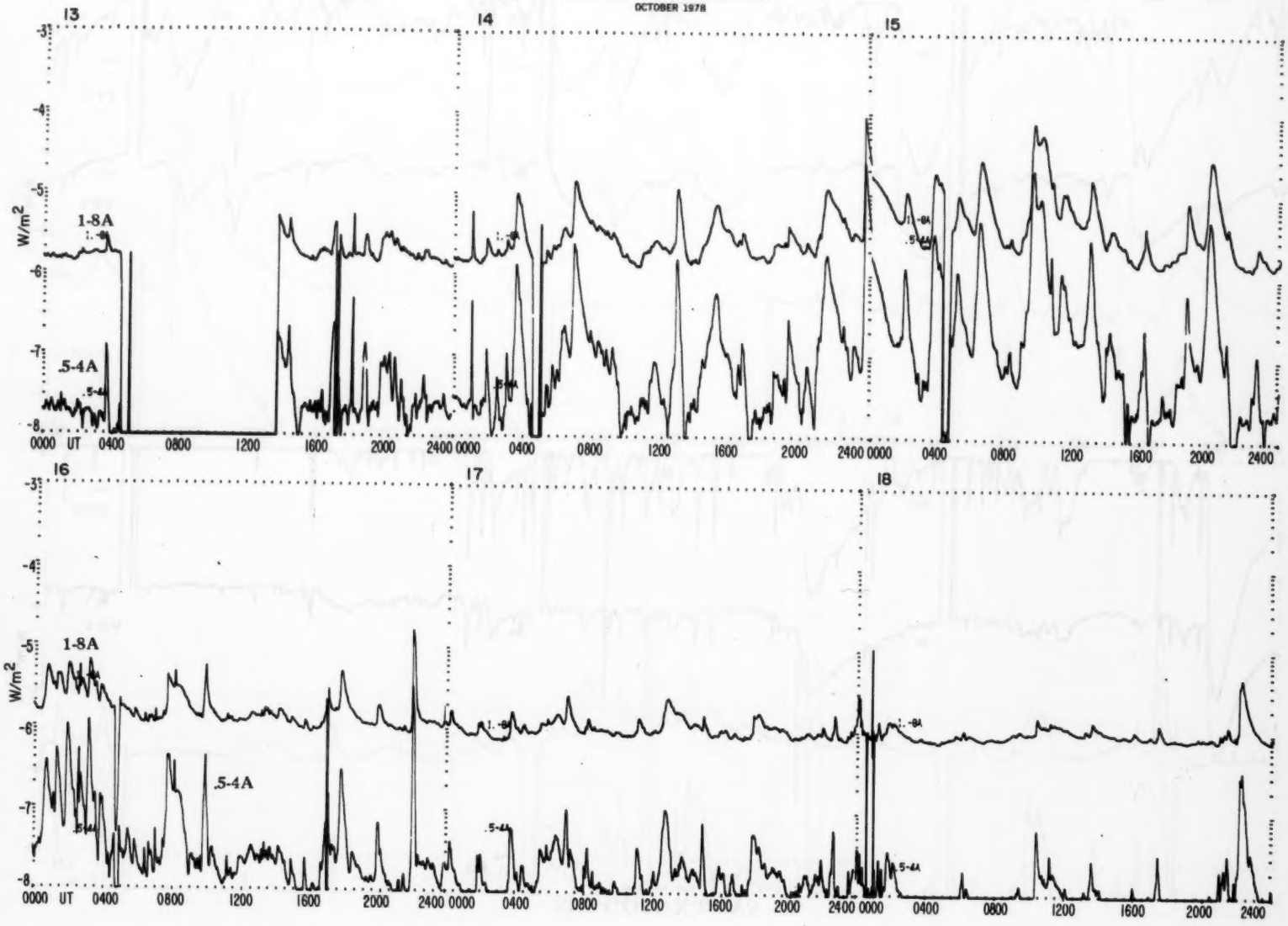
OCTOBER 1978

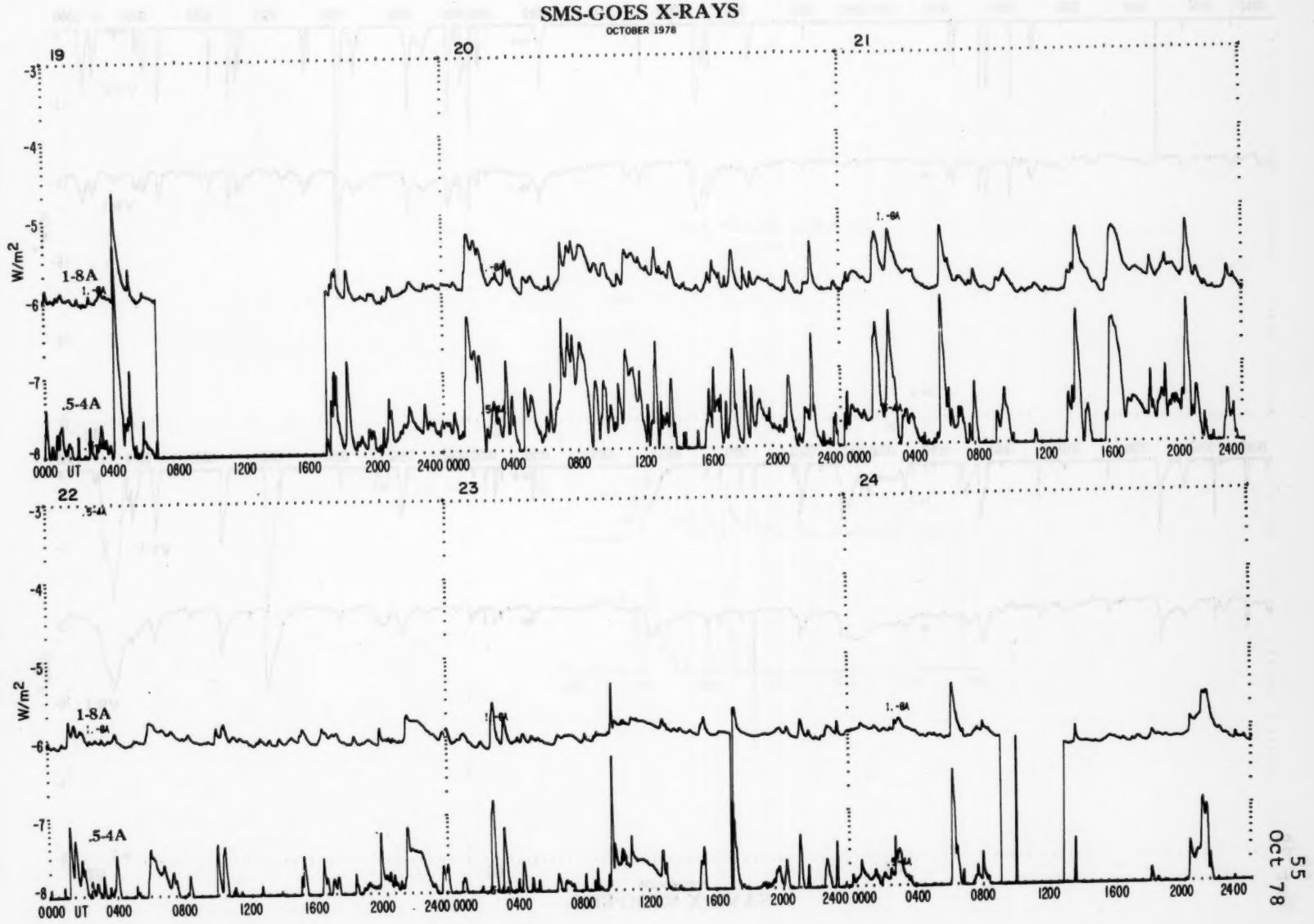



SMS-GOES X-RAYS
OCTOBER 1978
07
08
09
10
11
12
W/m2
1-8A
.5-4A
-3
-4
-5
-6
-7
-8
0000 UT 0400 0800 1200 1600 2000 2400 0000 0400 0800 1200 1600 2000 2400 0000 0400 0800 1200 1600 2000 2400

SMS-GOES X-RAYS

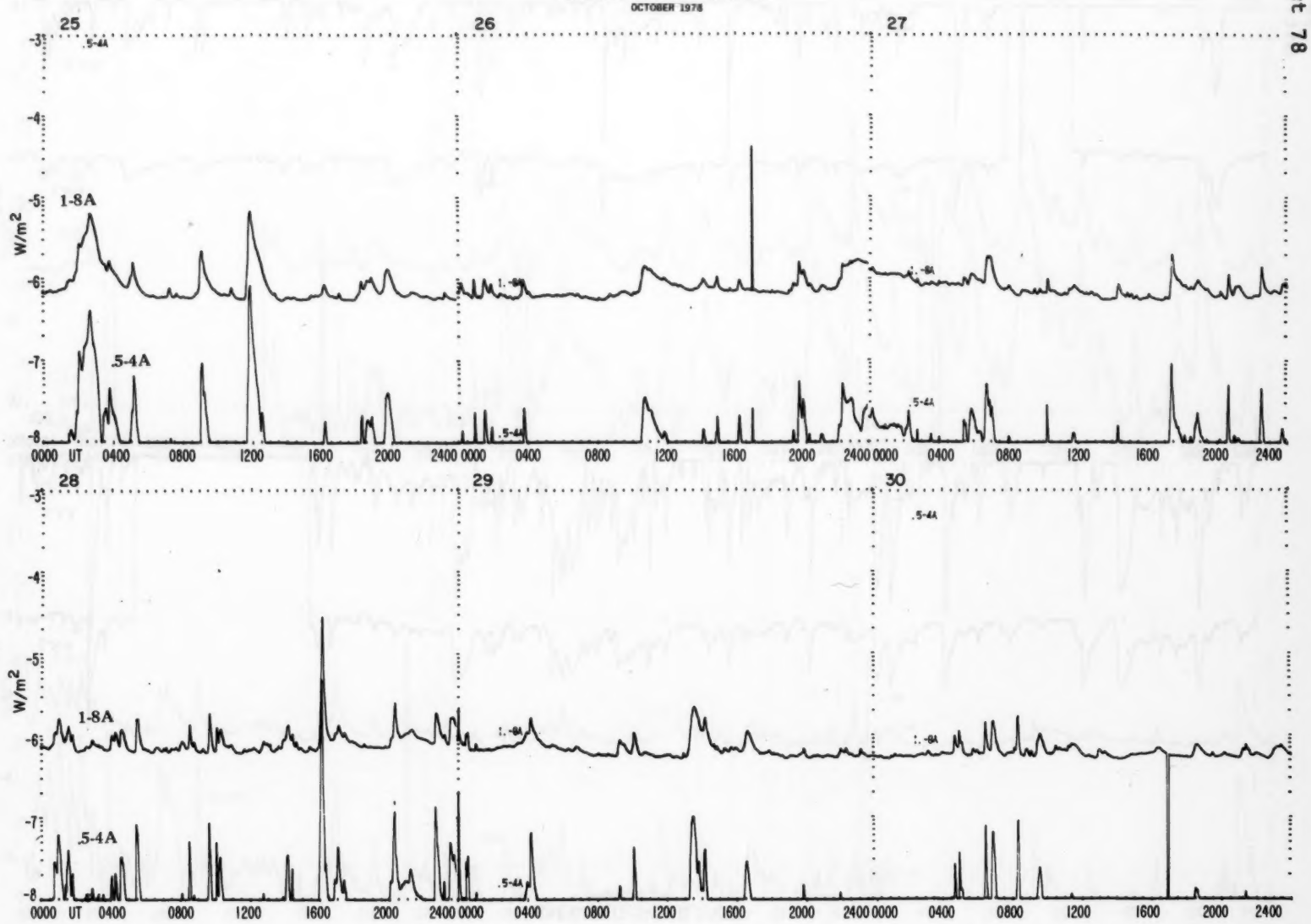
OCTOBER 1978

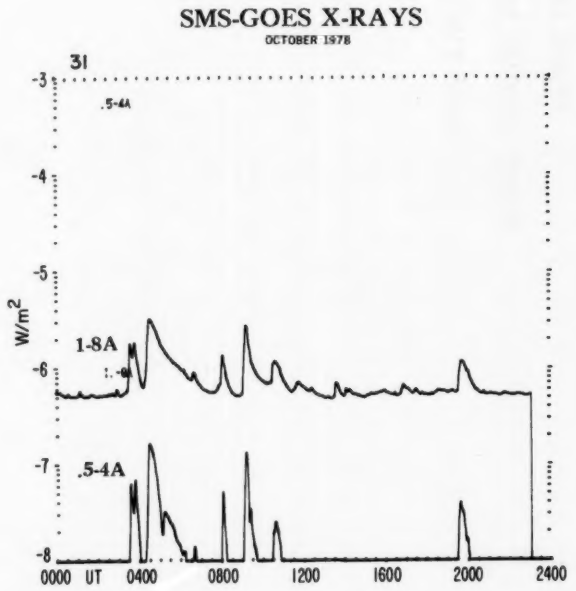



SMS-GOES X-RAYS
OCTOBER 1978
19
20
21
22
23
24
W/m2
1-8A
.5-4A
-3
-4
-5
-6
-7
-8
0000 UT
0400
0800
1200
1600
2000
2400 0000

SMS-GOES X-RAYS

OCTOBER 1978




SMS-GOES X-RAYS
OCTOBER 1978
31
-3
-4
-5
-6
-7
-8
W/m2
1-8A
.5-4A
0000 UT
0400
0800
1200
1600
2000
2400

SEPTEMBER 1978 DATA

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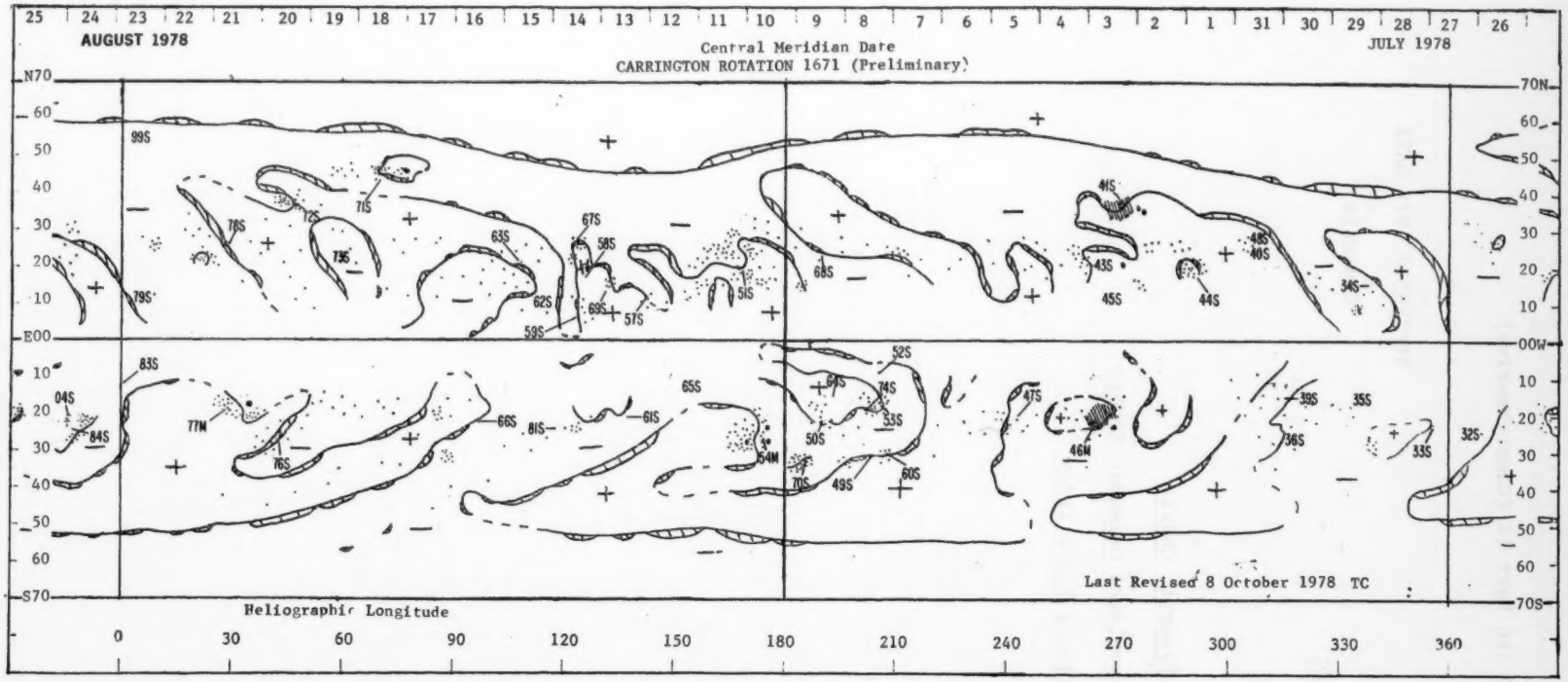
Hα Synoptic Charts	60-61
Abbreviated Calendar Record	62-69
Regional Flare Index	70

ABBREVIATED CALENDAR RECORD

Hα SYNOPTIC CHART

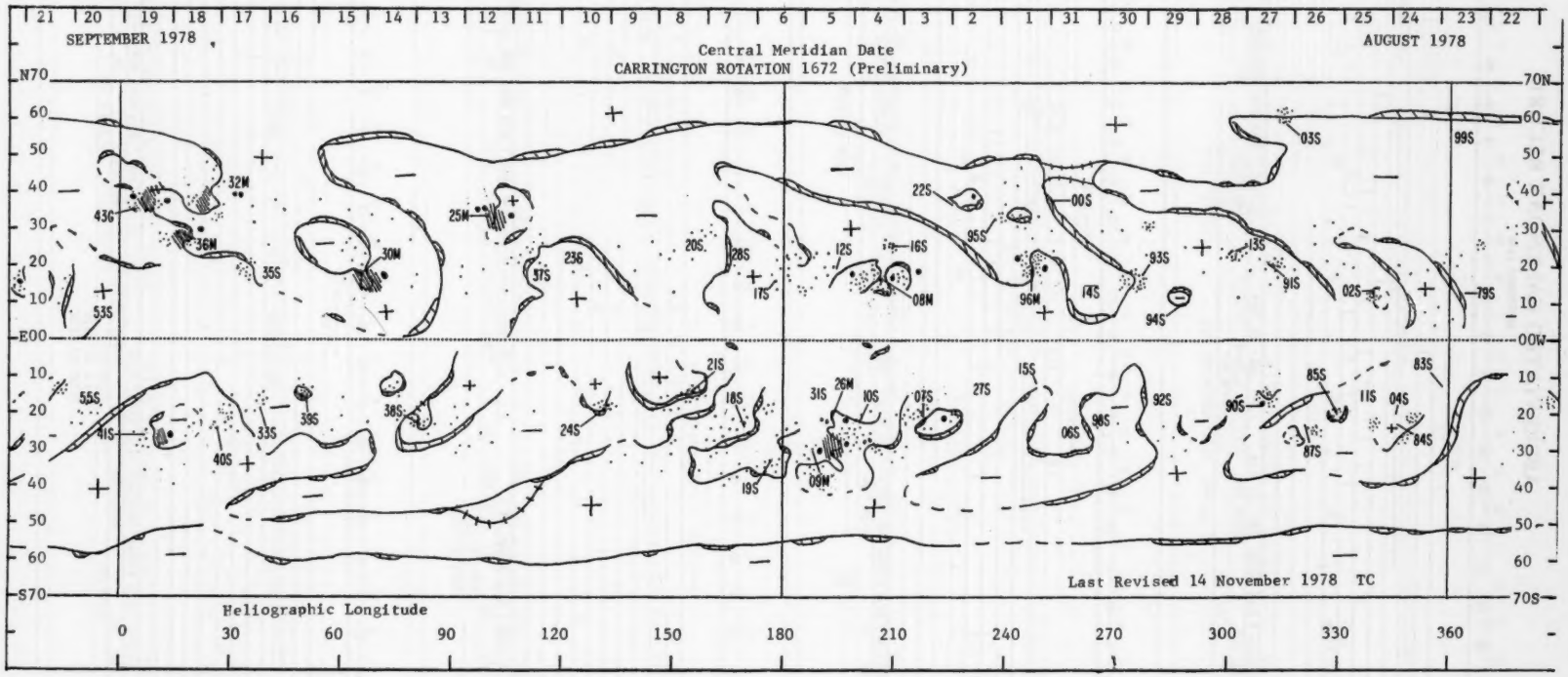
JULY - AUGUST 1978



ABBREVIATED CALENDAR RECORD

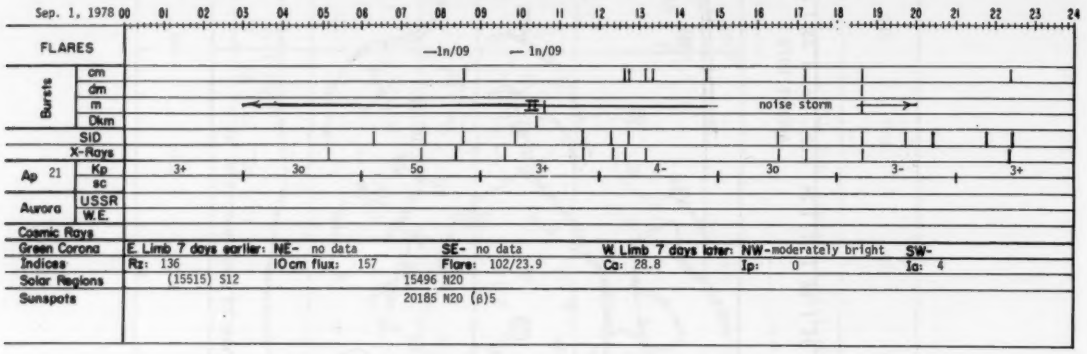
Hα SYNOPTIC CHART

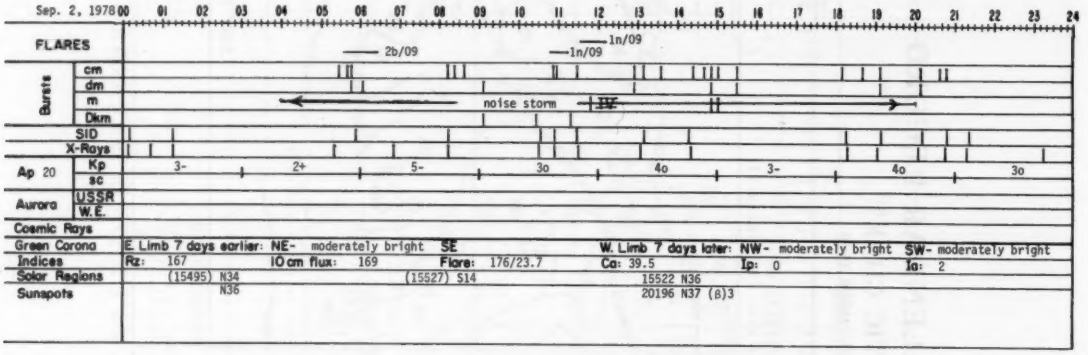
AUGUST - SEPTEMBER 1978

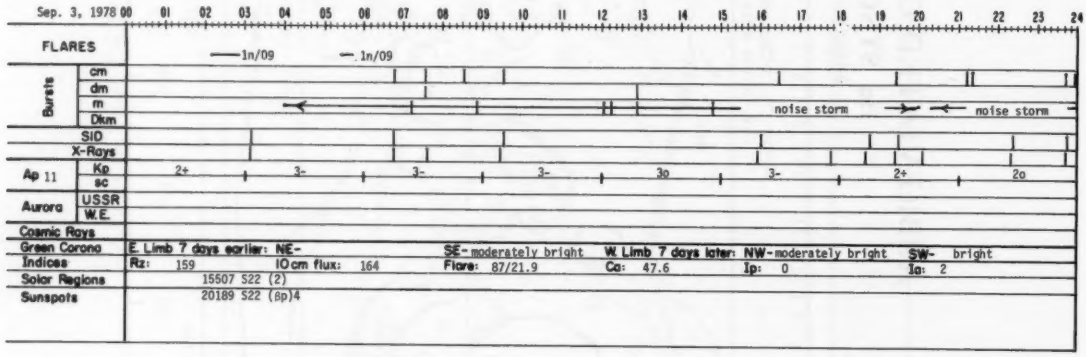


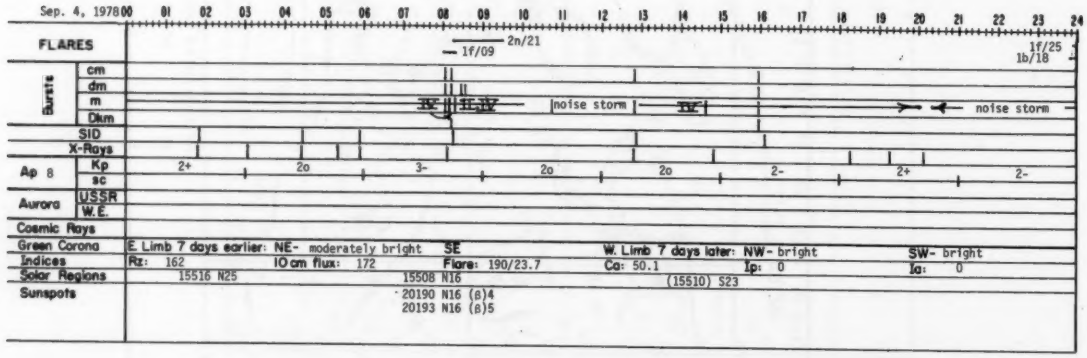
ABBREVIATED CALENDAR RECORD

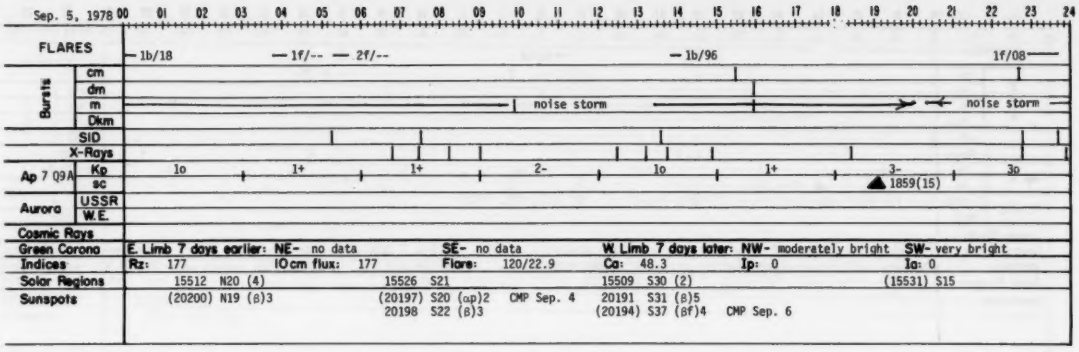
SEPTEMBER 1978

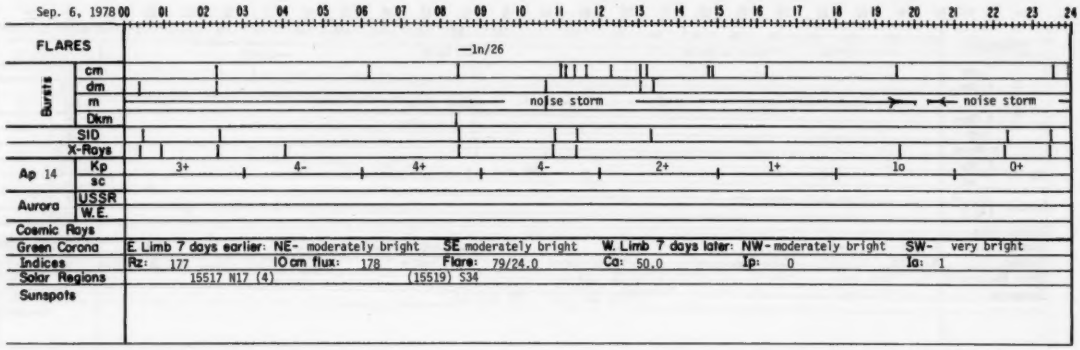


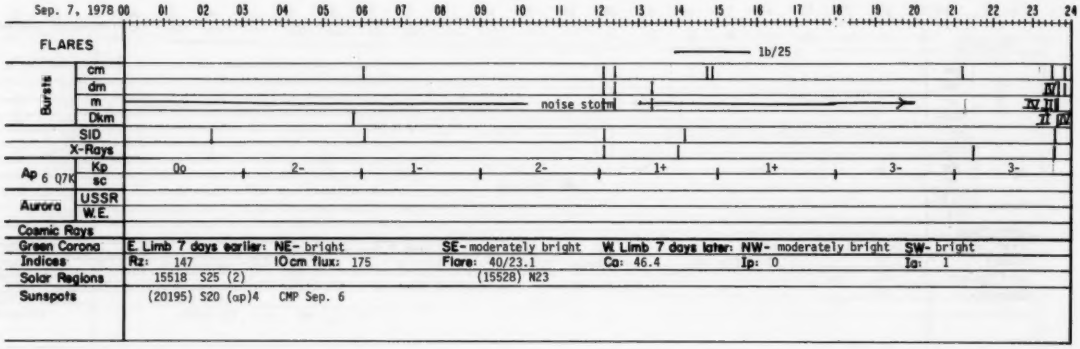


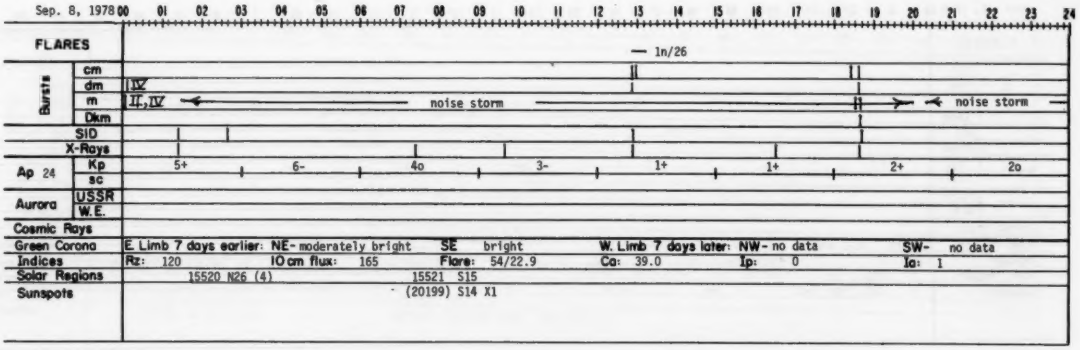


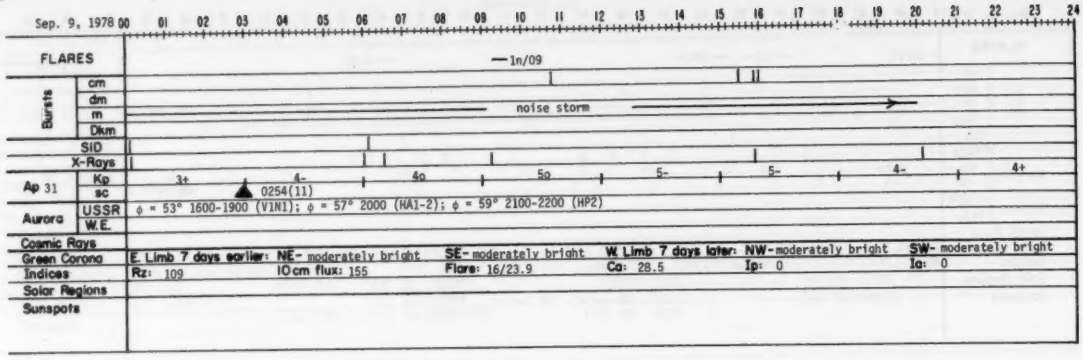


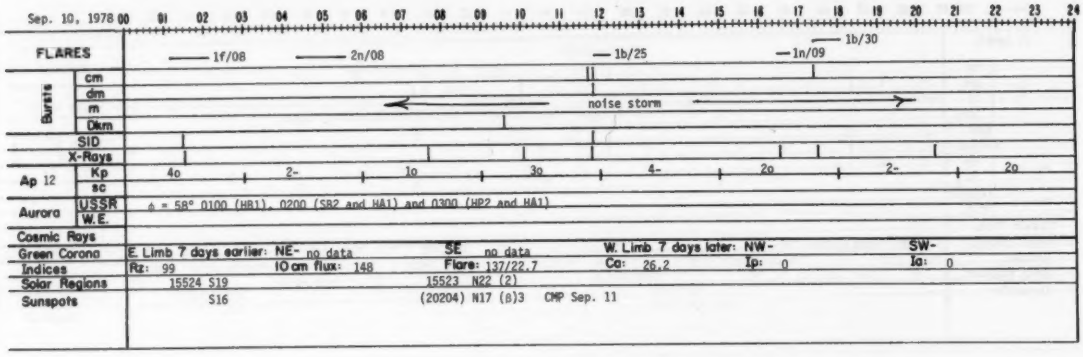

Sep. 5, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1b/18
1f/-- 2f/--
1b/96
1f/08
Bursts
cm
dm
m
Dkm
noise storm
noise storm
SID
X-Rays
Ap 7 Q9A
Kp
sc
1o 1+ 1+ 2- 1o 1+ 3- 3o
1859(15)
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE- no data
W. Limb 7 days later: NW- moderately bright SW- very bright
Indices
Rz: 177 10cm flux: 177 Flare: 120/22.9
Ca: 48.3 Ip: 0 Ia: 0
Solar Regions
15512 N20 (4) 15526 S21 15509 S30 (2) (15531) S15
Sunspots
(20200) N19 (8)3 (20197) S20 (ap)2 CMP Sep. 4 20191 S31 (8)5
20198 S22 (8)3 (20194) S37 (8f)4 CMP Sep. 6

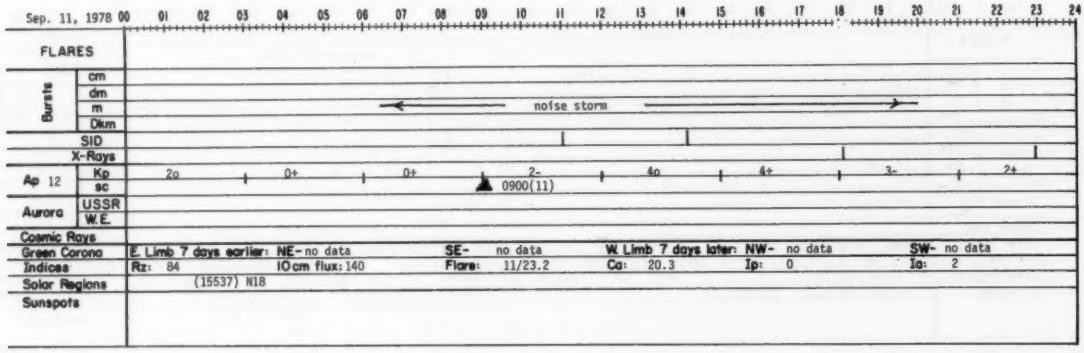

Sep. 6, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/26
Bursts
cm
dm
m
Dkm
noise storm
noise storm
SID
X-Rays
Ap 14
Kp
sc
3+ 4- 4+ 4- 2+ 1+ 1o 0+
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE moderately bright
W. Limb 7 days later: NW- moderately bright SW- very bright
Indices
Rz: 177 10cm flux: 178 Flare: 79/24.0
Ca: 50.0 Ip: 0 Ia: 1
Solar Regions
15517 N17 (4) (15519) S34
Sunspots

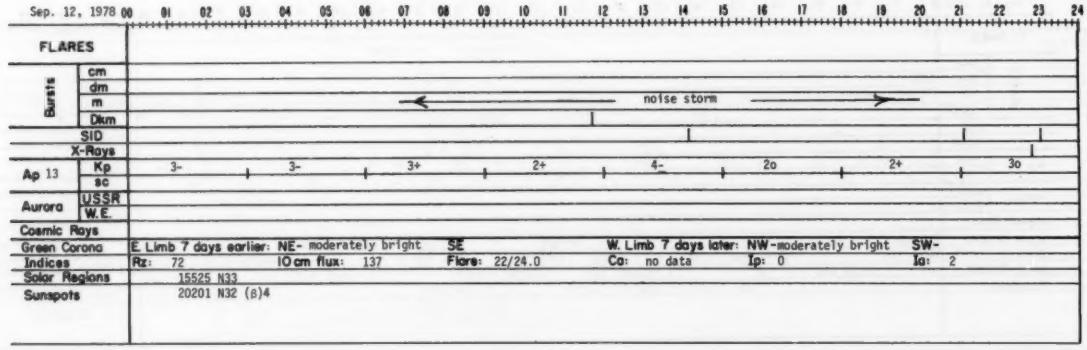

Sep. 7, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1b/25
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 6 Q7K
Kp
sc
0o 2- 1- 2- 1+ 1+ 3- 3-
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- bright SE- moderately bright
W. Limb 7 days later: NW- moderately bright SW- bright
Indices
Rz: 147 10cm flux: 175 Flare: 40/23.1
Ca: 46.4 Ip: 0 Ia: 1
Solar Regions
15518 S25 (2) (15528) N23
Sunspots
(20195) S20 (ap)4 CMP Sep. 6

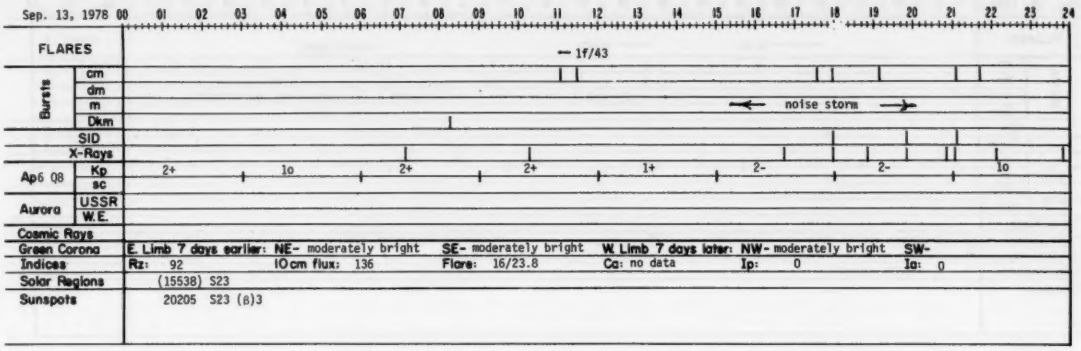

Sep. 8, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/26
Bursts
cm
dm
m
Dkm
noise storm
noise storm
SID
X-Rays
Ap 24
Kp
sc
5+ 6- 4o 3- 1+ 1+ 2+ 2o
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE bright
W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 120 10cm flux: 165 Flare: 54/22.9
Ca: 39.0 Ip: 0 Ia: 1
Solar Regions
15520 N26 (4) 15521 S15
Sunspots
(20199) S14 X1

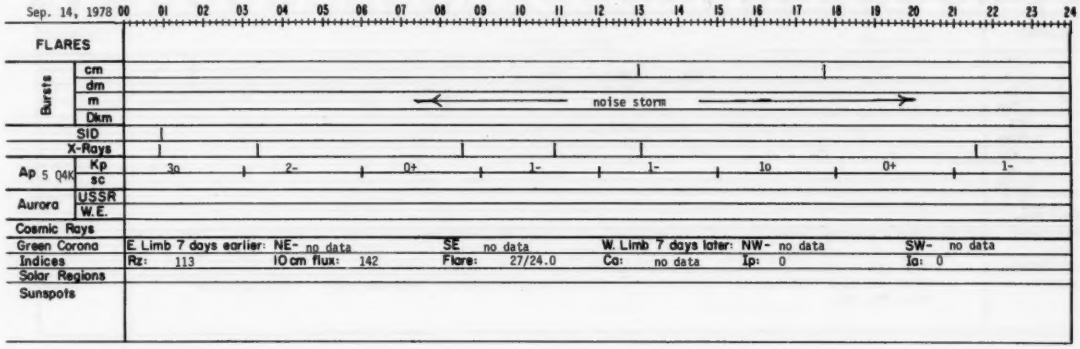

Sep. 9, 1978
FLARES
1n/09
Bursts
cm
dm
m
noise storm
Dkm
SID
X-Rays
Ap 31
Kp
3+
4-
4o
5o
5-
5-
4-
4+
sc
0254(11)
Aurora
USSR
φ = 53° 1600-1900 (V1N1); φ = 57° 2000 (HA1-2); φ = 59° 2100-2200 (HP2)
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright
SE- moderately bright
W. Limb 7 days later: NW- moderately bright
SW- moderately bright
Indices
Rz: 109
10 cm flux: 155
Flare: 16/23.9
Ca: 28.5
Ip: 0
Ia: 0
Solar Regions
Sunspots

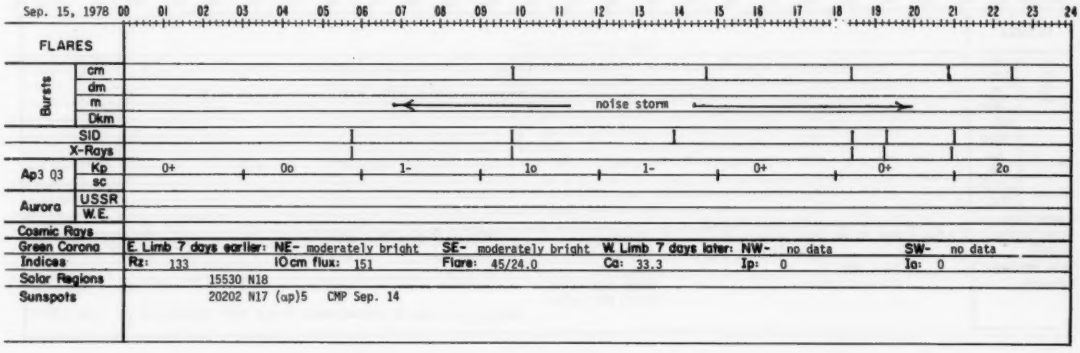

Sep. 10, 1978
FLARES
1f/08
2n/08
1b/25
1n/09
1b/30
Bursts
cm
dm
m
noise storm
Dkm
SID
X-Rays
Ap 12
Kp
4o
2-
1o
3o
4-
2o
2-
2o
sc
Aurora
USSR
φ = 58° 0100 (HB1), 0200 (SB2 and HA1) and 0300 (HP2 and HA1)
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data
SE no data
W. Limb 7 days later: NW-
SW-
Indices
Rz: 99
10 cm flux: 148
Flare: 137/22.7
Ca: 26.2
Ip: 0
Ia: 0
Solar Regions
15524 S19
15523 N22 (2)
Sunspots
S16
(20204) N17 (β)3 CMP Sep. 11

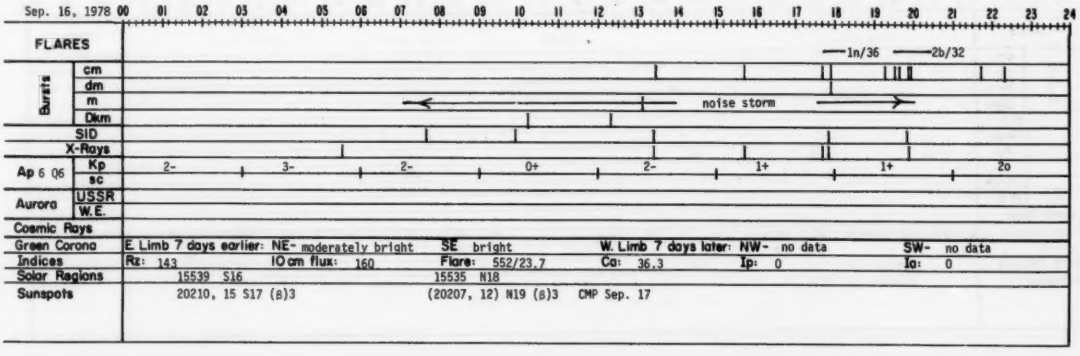

Sep. 11, 1978
FLARES
Bursts
cm
dm
m
noise storm
Dkm
SID
X-Rays
Ap 12
Kp
2o
0+
0+
2-
4o
4+
3-
2+
sc
0900(11)
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data
SE- no data
W. Limb 7 days later: NW- no data
SW- no data
Indices
Rz: 84
10 cm flux: 140
Flare: 11/23.2
Ca: 20.3
Ip: 0
Ia: 2
Solar Regions
(15537) N18
Sunspots

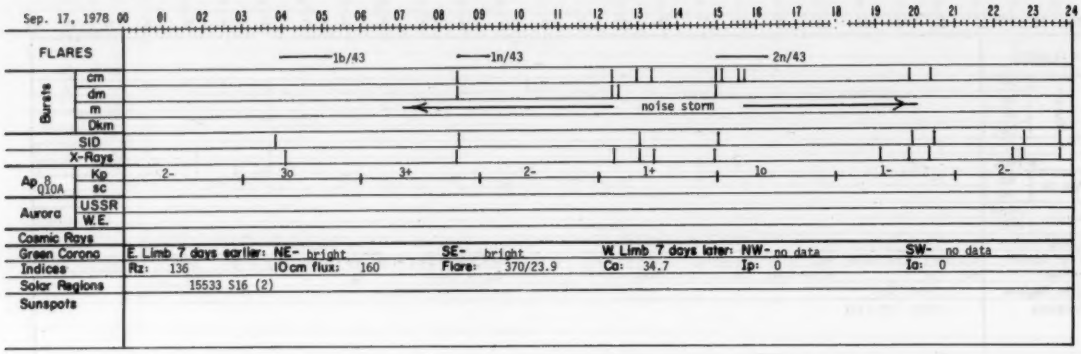

Sep. 12, 1978
FLARES
Bursts
cm
dm
m
noise storm
Dkm
SID
X-Rays
Ap 13
Kp
3-
3-
3+
2+
4-
2o
2+
3o
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright
SE
W. Limb 7 days later: NW- moderately bright
SW-
Indices
Rz: 72
10 cm flux: 137
Flare: 22/24.0
Ca: no data
Ip: 0
Ia: 2
Solar Regions
15525 N33
Sunspots
20201 N32 (β)4

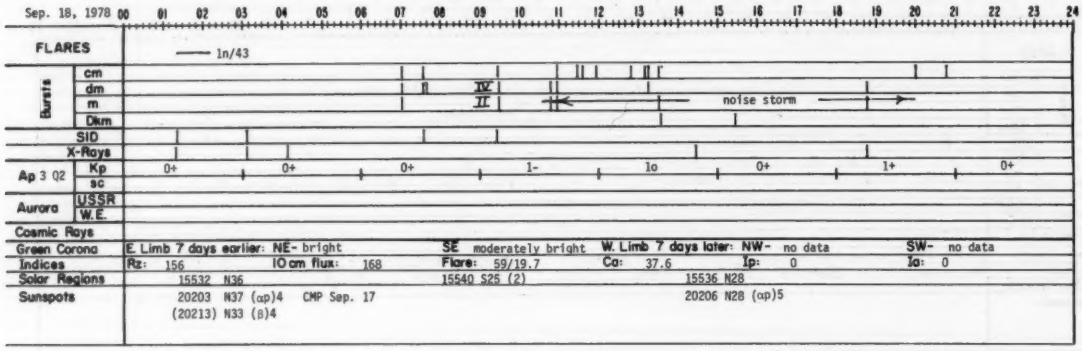

Sep. 13, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1f/43
Bursts
cm
dm
m
noise storm
Dkm
SID
X-Rays
Ap6 Q8
Kp
2+ 1o 2+ 2+ 1+ 2- 2- 1o
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE- moderately bright W. Limb 7 days later: NW- moderately bright SW-
Indices
Rz: 92 10 cm flux: 136 Flare: 16/23.8 Ca: no data Ip: 0 Ia: 0
Solar Regions
(15538) S23
Sunspots
20205 S23 (β)3

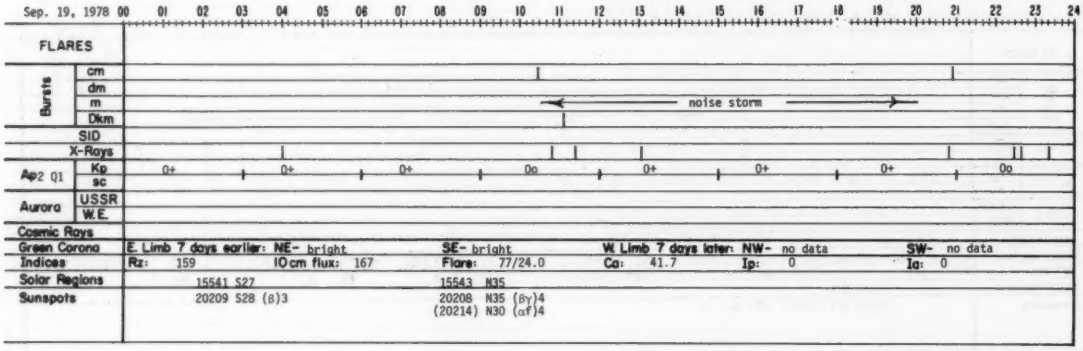

Sep. 14, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
noise storm
Dkm
SID
X-Rays
Ap 5 Q4K
Kp
3o 2- 0+ 1- 1- 1o 0+ 1-
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 113 10 cm flux: 142 Flare: 27/24.0 Ca: no data Ip: 0 Ia: 0
Solar Regions
Sunspots

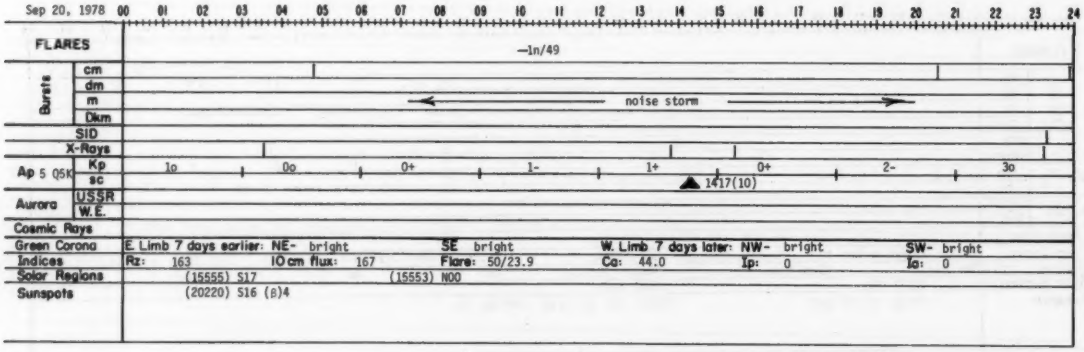

Sep. 15, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
noise storm
Dkm
SID
X-Rays
Ap3 Q3
Kp
0+ 0o 1- 1o 1- 0+ 0+ 2o
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE- moderately bright W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 133 10 cm flux: 151 Flare: 45/24.0 Ca: 33.3 Ip: 0 Ia: 0
Solar Regions
15530 N18
Sunspots
20202 N17 (αp)5 CMP Sep. 14

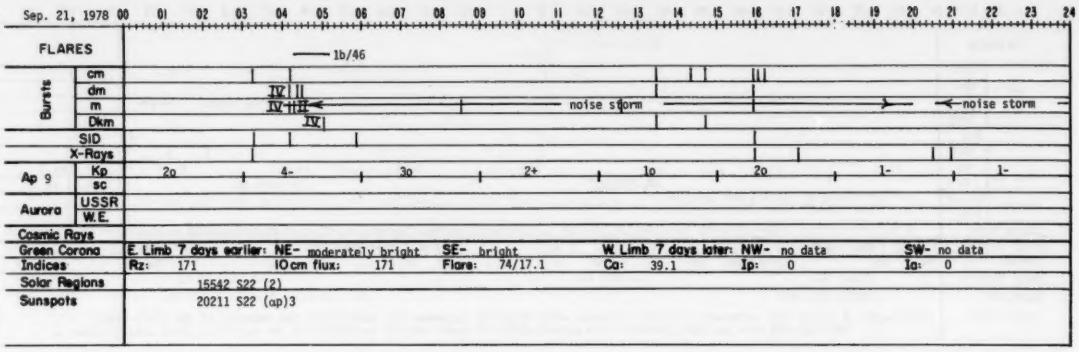

Sep. 16, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/36
2b/32
Bursts
cm
dm
m
noise storm
Dkm
SID
X-Rays
Ap 6 Q6
Kp
2- 3- 2- 0+ 2- 1+ 1+ 2o
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE bright W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 143 10 cm flux: 160 Flare: 552/23.7 Ca: 36.3 Ip: 0 Ia: 0
Solar Regions
15539 S16
15535 N18
Sunspots
20210, 15 S17 (β)3
(20207, 12) N19 (β)3 CMP Sep. 17

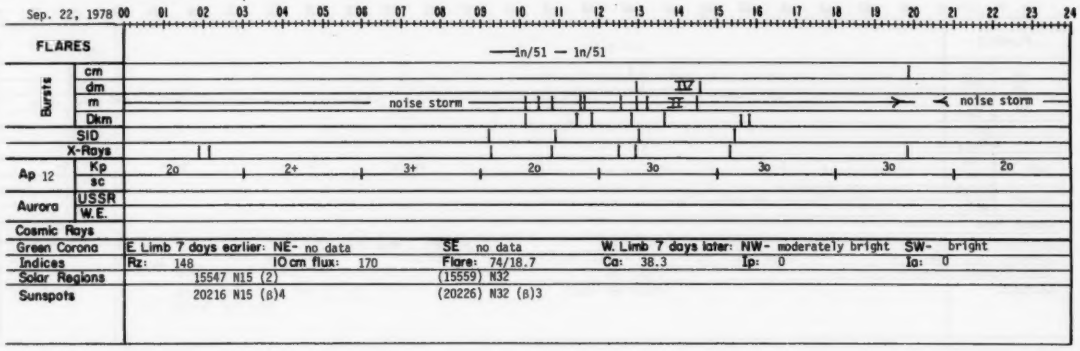

Sep. 17, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1b/43
1n/43
2n/43
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 8 Q10A
Kp
2- 3o 3+ 2- 1+ 1o 1- 2-
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- bright SE- bright W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 136 10 cm flux: 160 Flare: 370/23.9 Ca: 34.7 Ip: 0 Ia: 0
Solar Regions
15533 S16 (2)
Sunspots

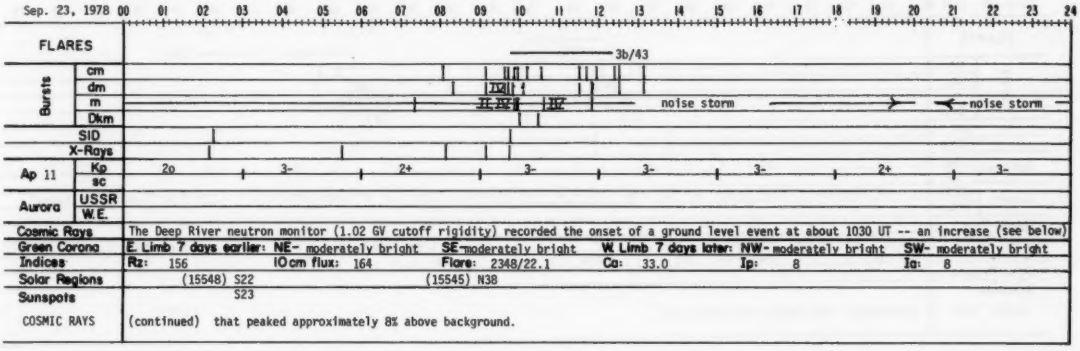

Sep. 18, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/43
Bursts
cm
dm
m
Dkm
IV
II
noise storm
SID
X-Rays
Ap 3 Q2
Kp
0+ 0+ 0+ 1- 1o 0+ 1+ 0+
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- bright SE moderately bright W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 156 10 cm flux: 168 Flare: 59/19.7 Ca: 37.6 Ip: 0 Ia: 0
Solar Regions
15532 N36 15540 S25 (2) 15536 N28
Sunspots
20203 N37 (αp)4 CMP Sep. 17
(20213) N33 (β)4
20206 N28 (αp)5

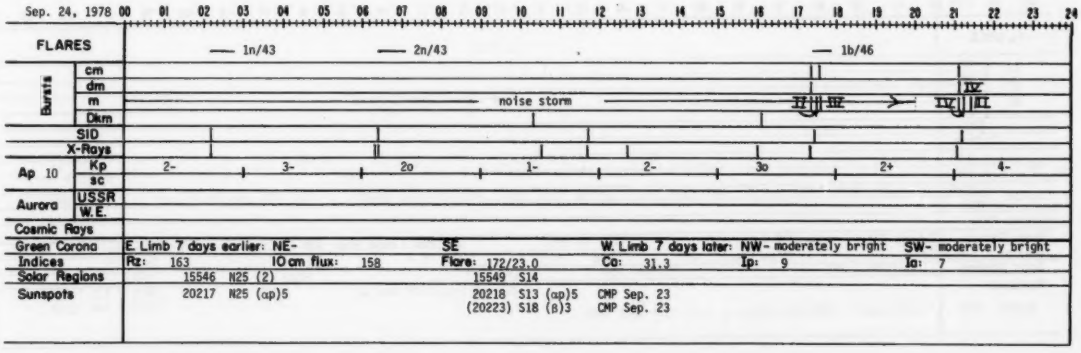

Sep. 19, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 2 Q1
Kp
0+ 0+ 0+ 0o 0+ 0+ 0+ 0o
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- bright SE- bright W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 159 10 cm flux: 167 Flare: 77/24.0 Ca: 41.7 Ip: 0 Ia: 0
Solar Regions
15541 S27 15543 N35
Sunspots
20209 S28 (β)3
20208 N35 (βγ)4
(20214) N30 (αf)4

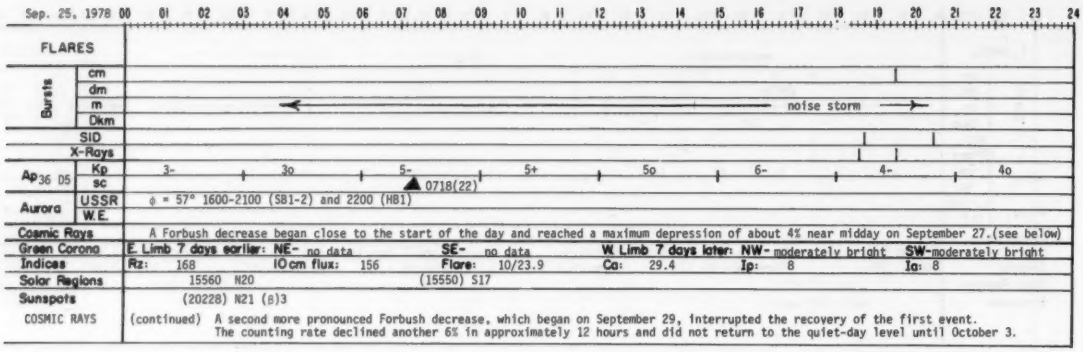

Sep 20, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/49
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 5 Q5K
Kp
1o 0o 0+ 1- 1+ 0+ 2- 3o
sc
1417(10)
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- bright SE bright W. Limb 7 days later: NW- bright SW- bright
Indices
Rz: 163 10 cm flux: 167 Flare: 50/23.9 Ca: 44.0 Ip: 0 Ia: 0
Solar Regions
(15555) S17 (15553) N00
Sunspots
(20220) S16 (β)4

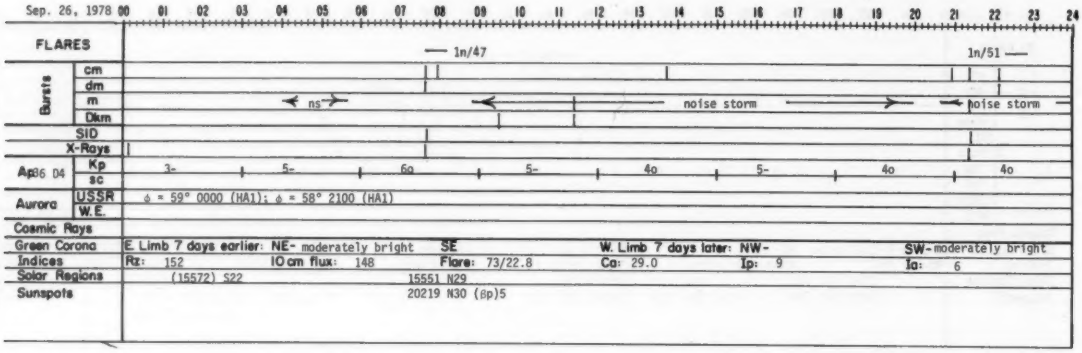

Sep. 21, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1b/46
Bursts
cm
dm
m
Dkm
noise storm
noise storm
SID
X-Rays
Ap 9
Kp
2o 4- 3o 2+ 1o 2o 1- 1-
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE- bright W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 171 10cm flux: 171 Flare: 74/17.1 Ca: 39.1 Ip: 0 Ia: 0
Solar Regions
15542 S22 (2)
Sunspots
20211 S22 (αp)3

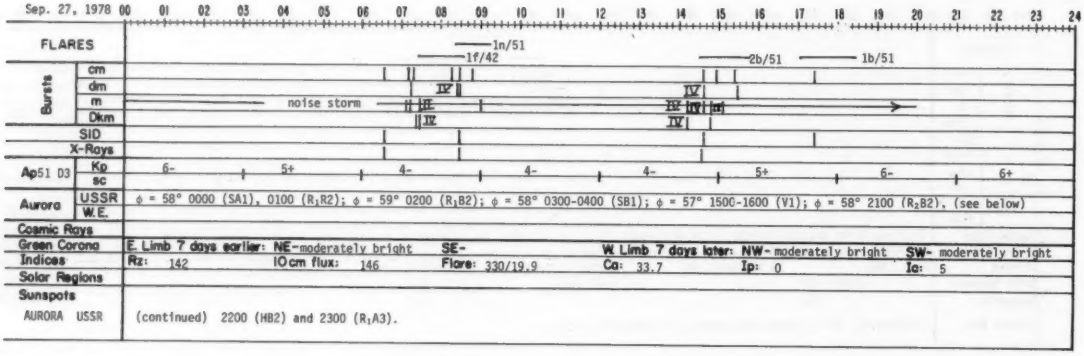

Sep. 22, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/51 — 1n/51
Bursts
cm
dm
m
Dkm
noise storm
noise storm
SID
X-Rays
Ap 12
Kp
2o 2+ 3+ 2o 3o 3o 3o 2o
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- moderately bright SW- bright
Indices
Rz: 148 10cm flux: 170 Flare: 74/18.7 Ca: 38.3 Ip: 0 Ia: 0
Solar Regions
15547 N15 (2)
(15559) N32
Sunspots
20216 N15 (β)4
(20226) N32 (β)3

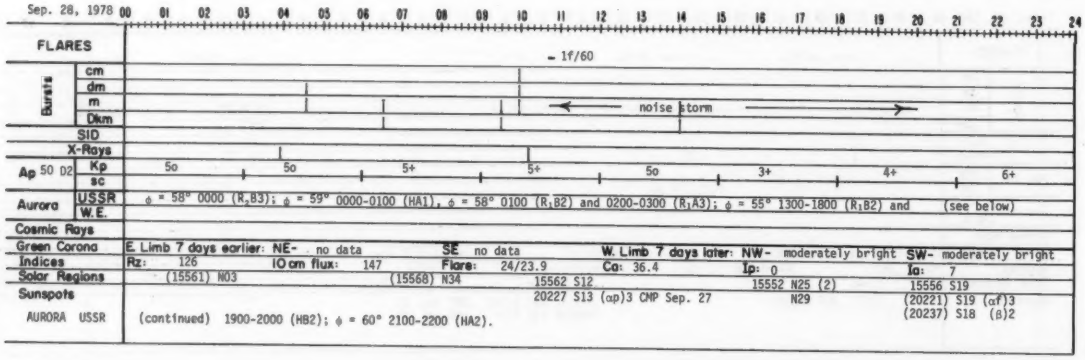

Sep. 23, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
3b/43
Bursts
cm
dm
m
Dkm
noise storm
noise storm
SID
X-Rays
Ap 11
Kp
2o 3- 2+ 3- 3- 3- 2+ 3-
sc
Aurora
USSR
W.E.
Cosmic Rays
The Deep River neutron monitor (1.02 GV cutoff rigidity) recorded the onset of a ground level event at about 1030 UT -- an increase (see below)
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE-moderately bright W. Limb 7 days later: NW- moderately bright SW- moderately bright
Indices
Rz: 156 10cm flux: 164 Flare: 2348/22.1 Ca: 33.0 Ip: 8 Ia: 8
Solar Regions
(15548) S22
(15545) N38
Sunspots
S23
COSMIC RAYS
(continued) that peaked approximately 8% above background.


Sep. 24, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/43
2n/43
1b/46
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 10
Kp
2- 3- 2o 1- 2- 3o 2+ 4-
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- SE W. Limb 7 days later: NW- moderately bright SW- moderately bright
Indices
Rz: 163 10cm flux: 158 Flare: 172/23.0 Ca: 31.3 Ip: 9 Ia: 7
Solar Regions
15546 N25 (2)
15549 S14
Sunspots
20217 N25 (αp)5
20218 S13 (αp)5 CMP Sep. 23
(20223) S18 (β)3 CMP Sep. 23


Sep. 25, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap36 D5
Kp
3- 3o 5- 5+ 5o 6- 4- 4o
sc
0718(22)
Aurora
USSR
φ = 57° 1600-2100 (SB1-2) and 2200 (HB1)
W.E.
Cosmic Rays
A Forbush decrease began close to the start of the day and reached a maximum depression of about 4% near midday on September 27.(see below)
Green Corona
E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- moderately bright SW-moderately bright
Indices
Rz: 168 10cm flux: 156 Flare: 10/23.9 Ca: 29.4 Ip: 8 Ia: 8
Solar Regions
15560 N20 (15550) S17
Sunspots
(20228) N21 (β)3
COSMIC RAYS
(continued) A second more pronounced Forbush decrease, which began on September 29, interrupted the recovery of the first event.
The counting rate declined another 6% in approximately 12 hours and did not return to the quiet-day level until October 3.


Sep. 26, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/47
1n/51
Bursts
cm
dm
m
Dkm
ns
noise storm
noise storm
SID
X-Rays
Ap36 D4
Kp
3- 5- 6o 5- 4o 5- 4o 4o
sc
Aurora
USSR
φ = 59° 0000 (HA1); φ = 58° 2100 (HA1)
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE W. Limb 7 days later: NW- SW-moderately bright
Indices
Rz: 152 10cm flux: 148 Flare: 73/22.8 Ca: 29.0 Ip: 9 Ia: 6
Solar Regions
(15572) S22 15551 N29
Sunspots
20219 N30 (βp)5


Sep. 27, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/51
1f/42
2b/51
1b/51
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap51 D3
Kp
6- 5+ 4- 4- 4- 5+ 6- 6+
sc
Aurora
USSR
φ = 58° 0000 (SA1), 0100 (R1R2); φ = 59° 0200 (R1B2); φ = 58° 0300-0400 (SB1); φ = 57° 1500-1600 (V1); φ = 58° 2100 (R2B2), (see below)
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE-moderately bright SE- W. Limb 7 days later: NW- moderately bright SW- moderately bright
Indices
Rz: 142 10cm flux: 146 Flare: 330/19.9 Ca: 33.7 Ip: 0 Ia: 5
Solar Regions
Sunspots
AURORA USSR
(continued) 2200 (HB2) and 2300 (R1A3).


Sep. 28, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1f/60
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 50 D2
Kp
5o 5o 5+ 5+ 5o 3+ 4+ 6+
sc
Aurora
USSR
φ = 58° 0000 (R2B3); φ = 59° 0000-0100 (HA1), φ = 58° 0100 (R1B2) and 0200-0300 (R1A3); φ = 55° 1300-1800 (R1B2) and (see below)
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- moderately bright SW- moderately bright
Indices
Rz: 126 10cm flux: 147 Flare: 24/23.9 Ca: 36.4 Ip: 0 Ia: 7
Solar Regions
(15561) N03 (15568) N34 15562 S12 15552 N25 (2) 15556 S19
Sunspots
20227 S13 (αp)3 CMP Sep. 27 N29 (20221) S19 (αf)3
(20237) S18 (β)2
AURORA USSR
(continued) 1900-2000 (HB2); φ = 60° 2100-2200 (HA2).

Sep. 29, 1978 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

FLARES		1n/64; 1n/51
Bursts	cm	
	dm	
	m	II
	Dkm	
SID		
X-Rays		
Ap 109 01	Kp	4+ 7- 8- 8o 8o 7- 4- 2-
	sc	0301(22)
Aurora	USSR	ϕ = 56° 1300-1400 (R_1B2-3); ϕ = 49° 1600 (SB2); ϕ = 52° 1500 and 1700-2000 (R_{1-2} R1-2); ϕ = 54° 2100 (R_1R2)
	W.E.	
Cosmic Rays		Forbush decrease, which began early in the day, reached a maximum near midday.
Green Corona		E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- no data SW- no data
Indices		Rz: 122 IOcm flux: 148 Flare: 50/23.8 Ca: 40.1 Ip: 0 Ia: 5
Solar Regions		15554 S13 (2)
Sunspots		(20222) S13 (αp)3 CMP Sep. 28

Sep. 30, 1978 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

FLARES		
Bursts	cm	
	dm	
	m	
	Dkm	
SID		
X-Rays		
Ap 11	Kp	1+ 4o 4- 2+ 2- 2- 2+ 2o
	sc	
Aurora	USSR	
	W.E.	
Cosmic Rays		
Green Corona		E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW-very bright SW- bright
Indices		Rz: 94 IOcm flux: 142 Flare: 12/24.0 Ca: 32.1 Ip: 0 Ia: 5
Solar Regions		15563 S18
Sunspots		20229 S17 (β)4 CMP Sep. 29 (20232) S17 (β)3

REGIONAL FLARE INDEX

INCLUDES ALL FLARES

SEPTEMBER 1978

MC MATH PLAGE NO.	LAT	CMP DATE	DATE FIRST FLARE	DATE LAST FLARE	FLARE-INDEX SUM	FLARE-INDEX MEAN	TOTAL NO. OF FLARES
15496	N20	78/09/01.3	78/08/26	78/09/06	91.99	7.67	34
15495	N34	78/09/02.1	78/08/25	78/08/30	4.45	.74	4
15522	N37	78/09/02.9	78/09/04	78/09/10	21.11	3.02	15
15507	S22	78/09/03.5	78/08/30	78/09/10	10.29	.86	8
15508	N17	78/09/04.3	78/08/28	78/09/10	321.43	22.96	87
15512	N20	78/09/05.3	78/09/01	78/09/12	1.69	.14	2
15526	S22	78/09/05.3	78/09/05	78/09/11	101.78	14.54	28
15509	S31	78/09/05.7	78/08/29	78/09/10	362.18	27.86	115
15518	S25	78/09/07.2	78/08/31	78/09/07	18.79	2.35	5
15521	S15	78/09/08.4	78/09/02	78/09/13	64.43	5.37	6
15524	S19	78/09/10.0	78/09/04	78/09/04	1.70	1.70	2
15525	N33	78/09/12.3	78/09/04	78/09/17	75.69	5.41	29
15530	N18	78/09/15.1	78/09/09	78/09/19	70.23	6.38	20
15539	S16	78/09/16.2	78/09/18	78/09/19	12.41	6.20	6
15535	N18	78/09/16.9	78/09/14	78/09/20	1.90	.27	2
15532	N39	78/09/18.5	78/09/12	78/09/22	511.36	46.49	11
15536	N28	78/09/18.9	78/09/11	78/09/22	66.97	5.58	19
15541	S28	78/09/19.7	78/09/13	78/09/19	49.68	7.10	18
15543	N35	78/09/19.8	78/09/12	78/09/26	2938.54	195.90	79
15555	S17	78/09/20.7	78/09/23	78/09/26	8.47	2.12	6
15542	S23	78/09/22.0	78/09/16	78/09/27	29.96	2.50	9
15547	N15	78/09/22.0	78/09/19	78/09/27	45.91	5.10	8
15549	S14	78/09/24.1	78/09/19	78/09/30	56.08	4.67	21
15546	N25	78/09/24.2	78/09/19	78/09/24	95.96	15.99	11
15560	N20	78/09/25.1	78/09/26	78/09/28	14.88	4.96	3
15572	S22	78/09/26.2	78/10/02	78/10/03	2.53	1.27	3
15551	N29	78/09/26.3	78/09/22	78/10/02	446.27	40.57	35
15556	S18	78/09/28.8	78/09/25	78/10/03	6.12	.68	3
15554	S13	78/09/29.3	78/09/24	78/10/01	16.11	2.01	9
15563	S18	78/09/30.2	78/10/01	78/10/01	3.38	3.38	1
15558	N17	78/09/30.9	78/10/06	78/10/06	.65	.65	1

Miscellaneous Data

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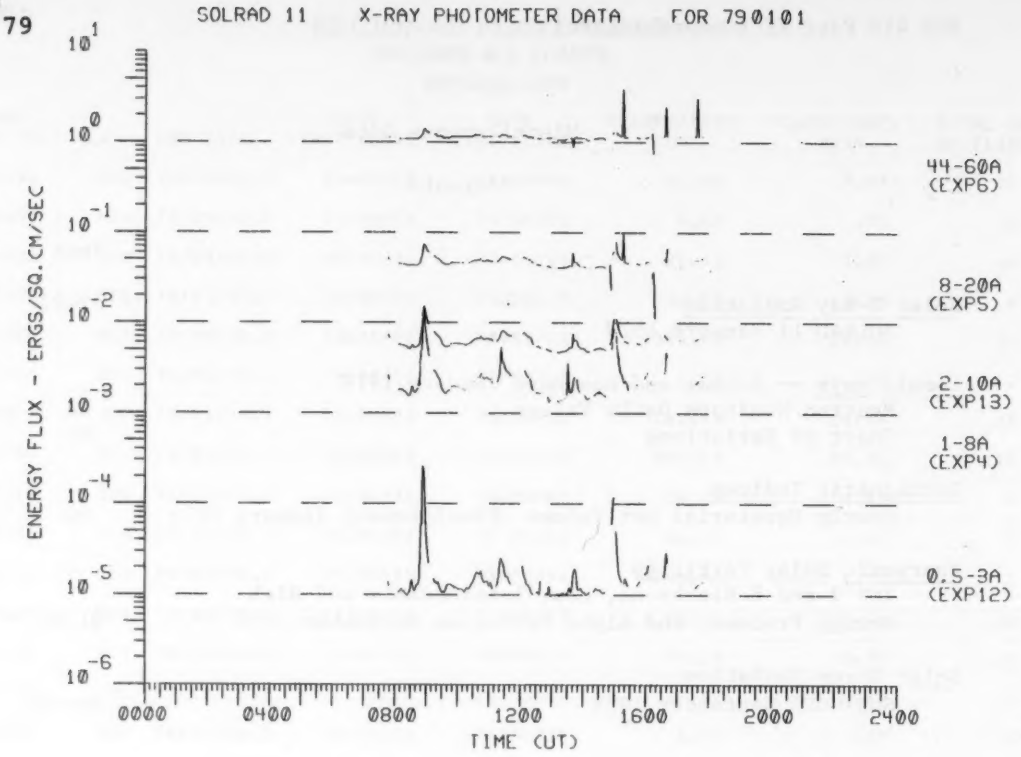
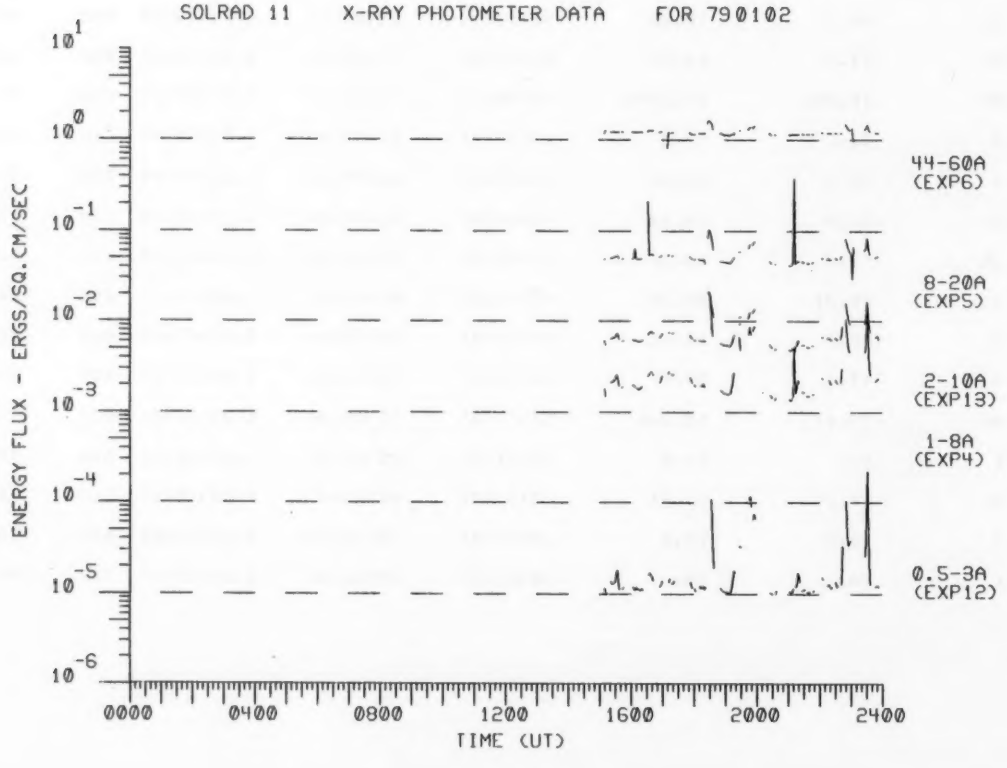
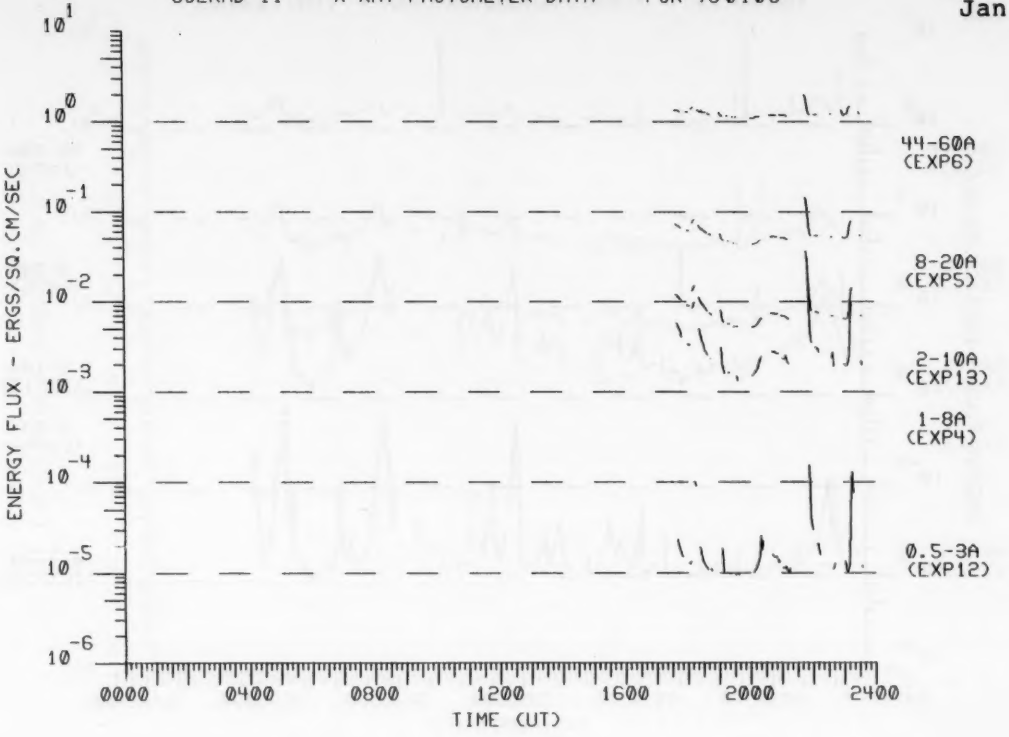
Energetic Solar Particles IMP 7 and 8 Electrons, Low, Intermediate and High Energy Protons, and Alpha Particles September 1978	 91-95
Solar X-ray Radiation SMS-GOES September 1978	 96-100

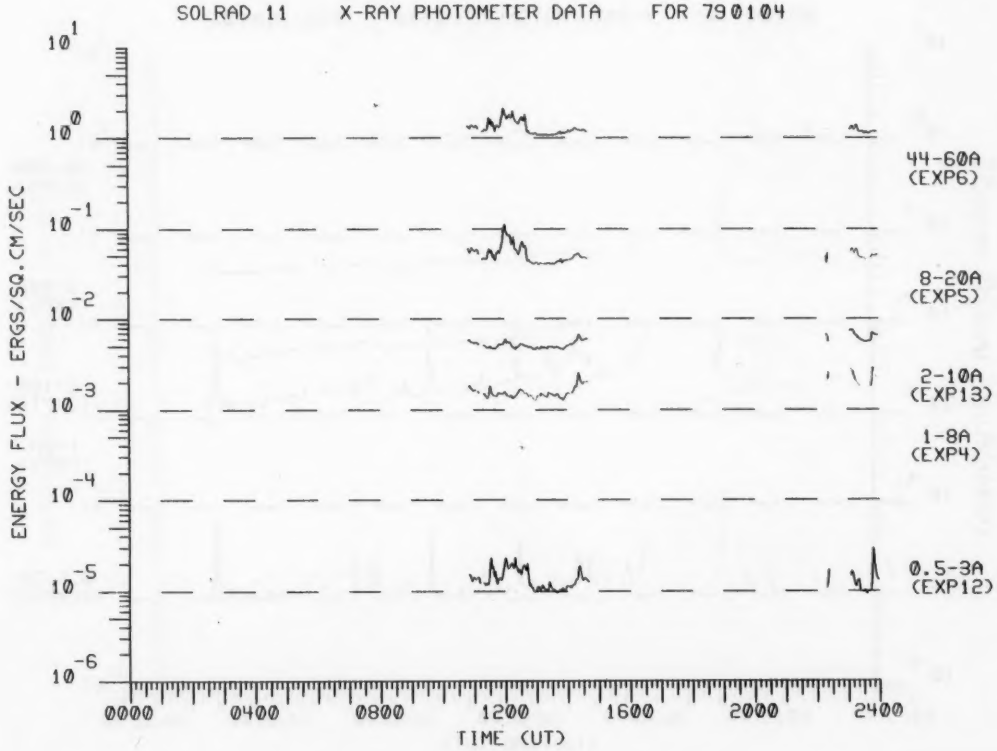

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790101
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

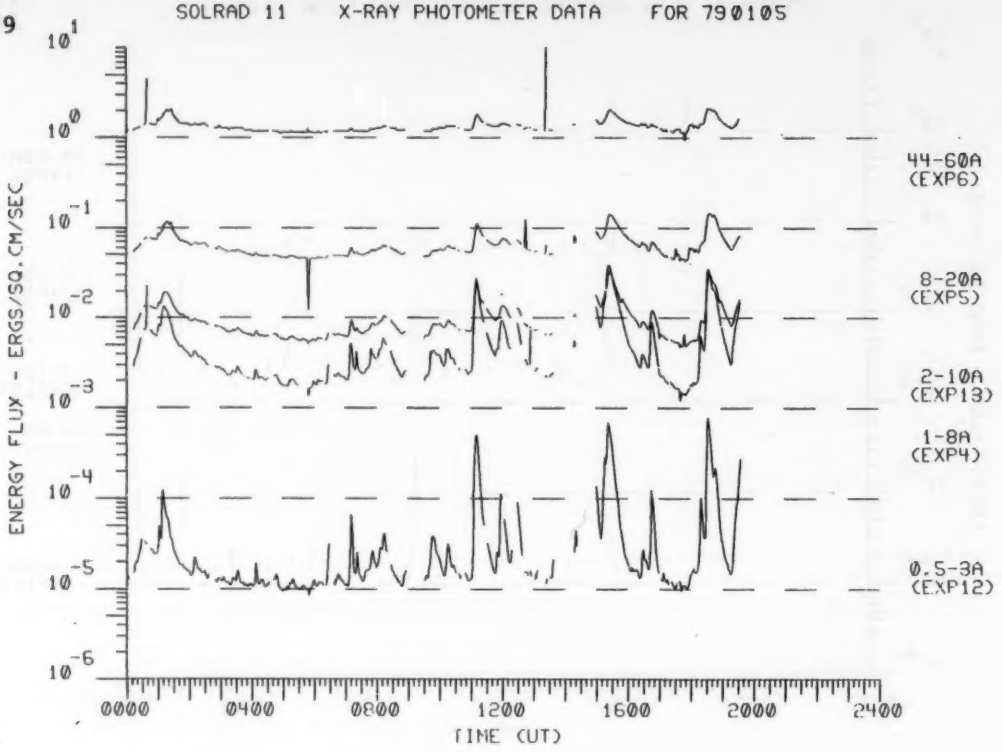

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790102
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

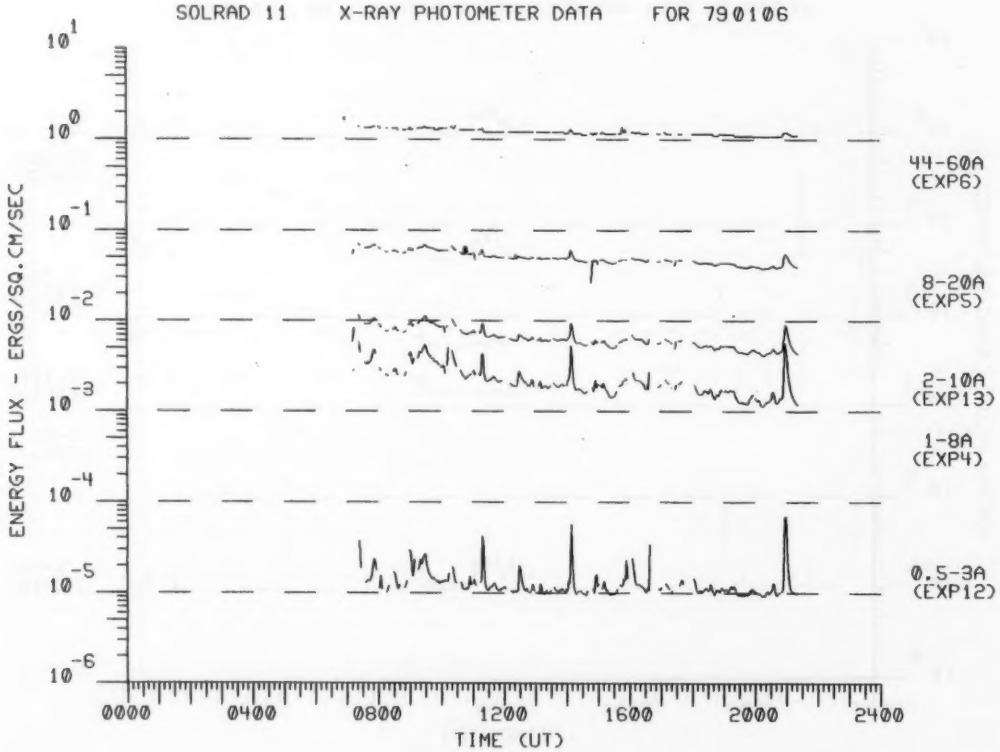
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790103

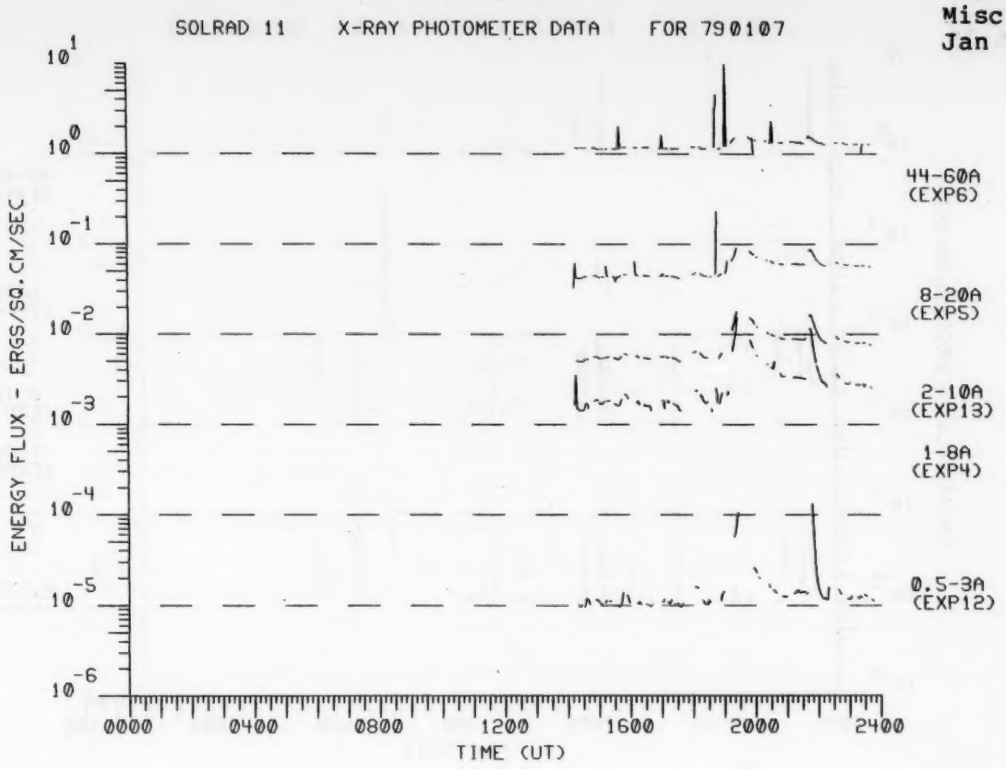


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790104




SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790105
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790106
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790107
ENERGY FLUX - ERGS/SQ.CM/SEC
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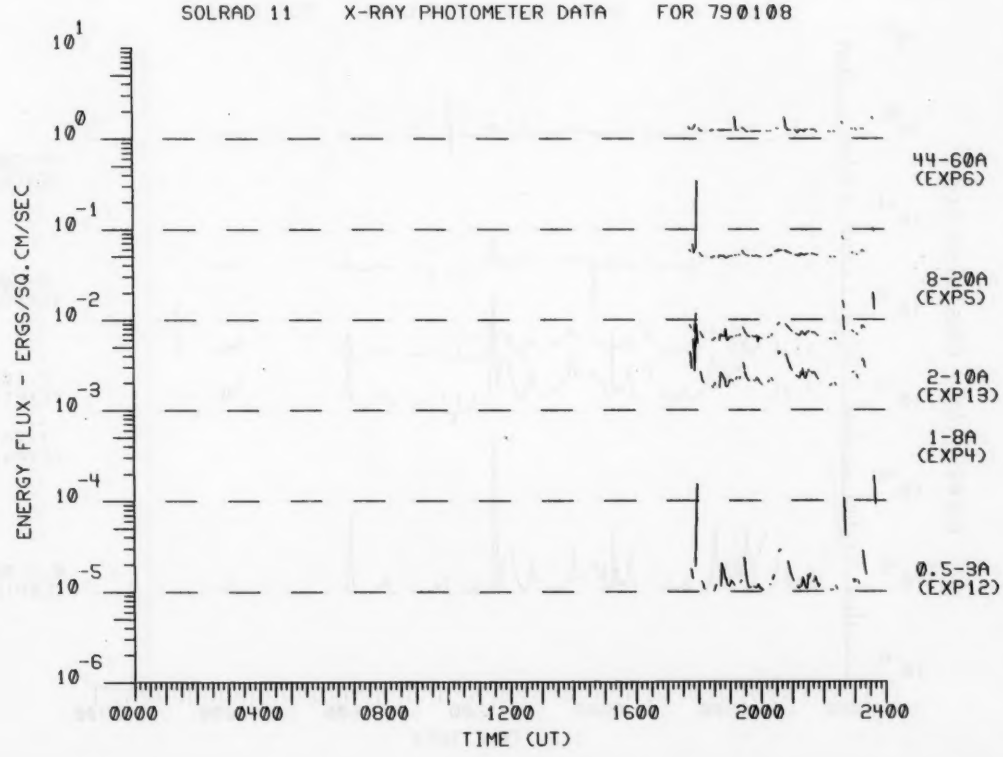
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790108
ENERGY FLUX - ERGS/SQ.CM/SEC
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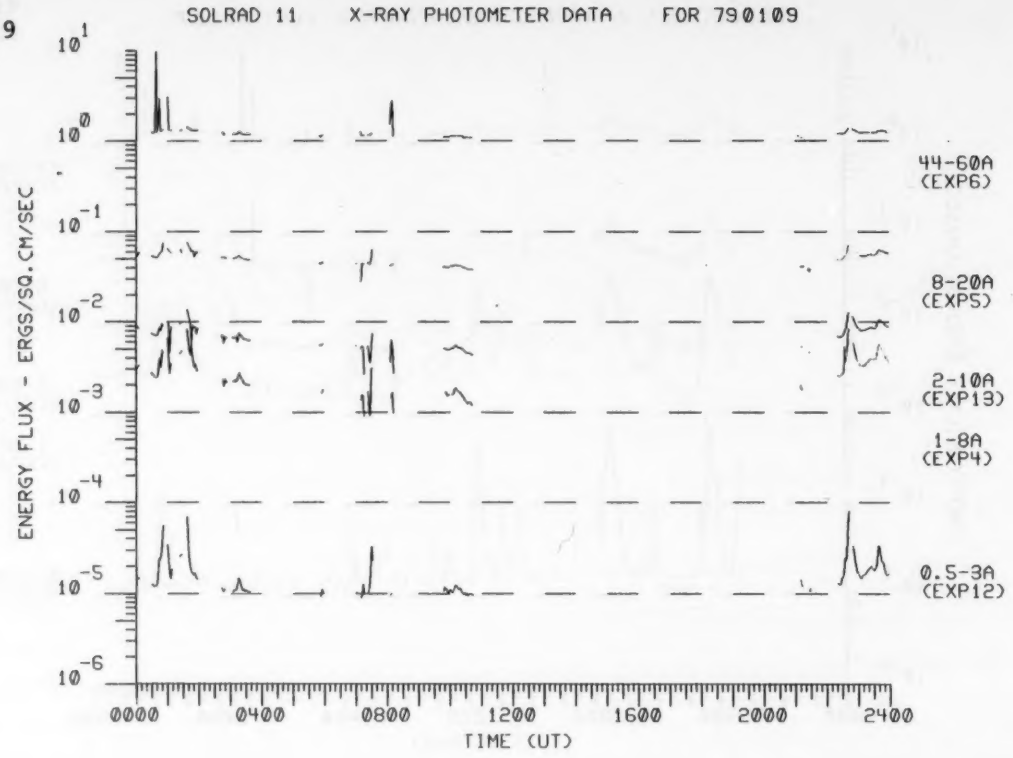
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790109
ENERGY FLUX - ERGS/SQ.CM/SEC
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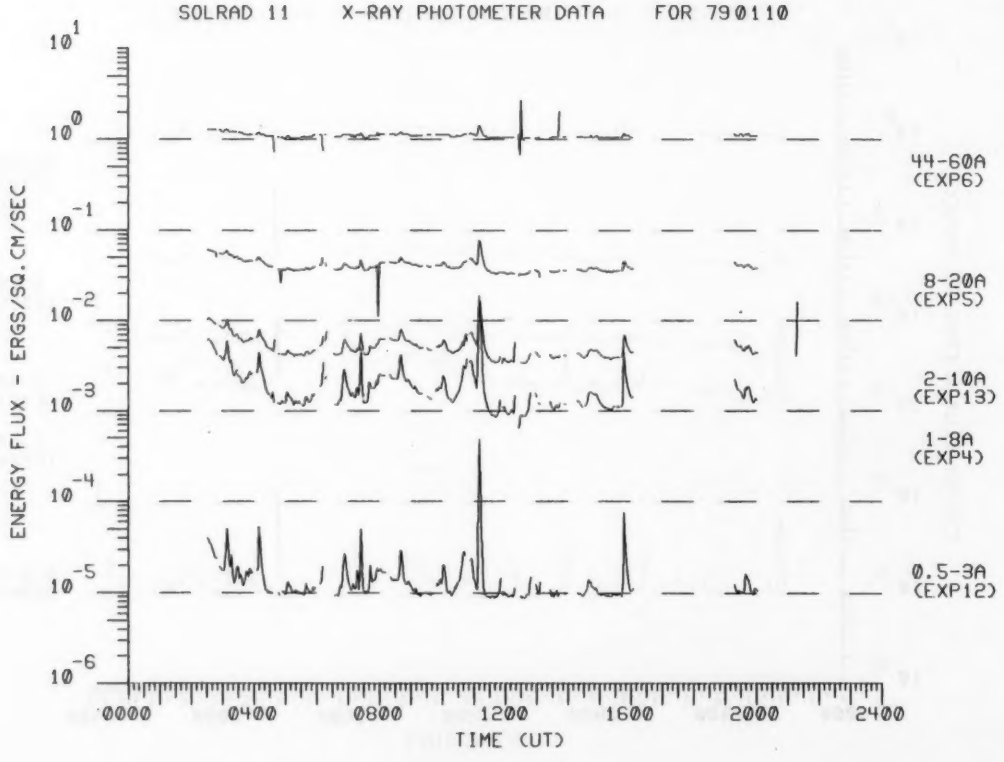
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790110
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
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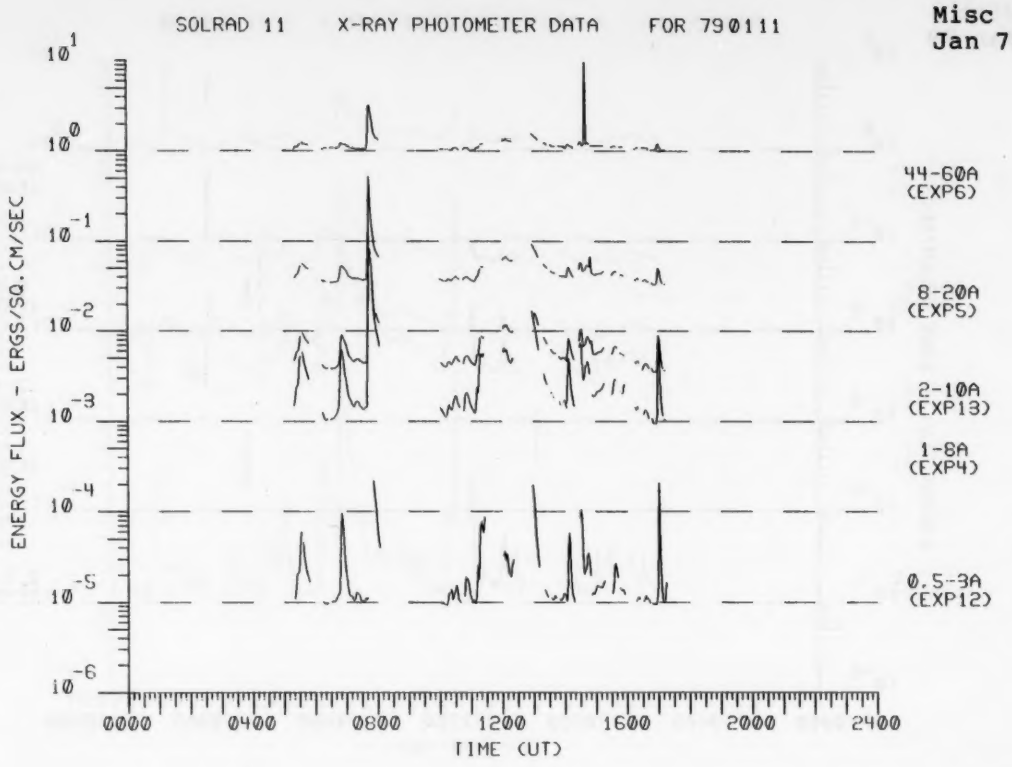
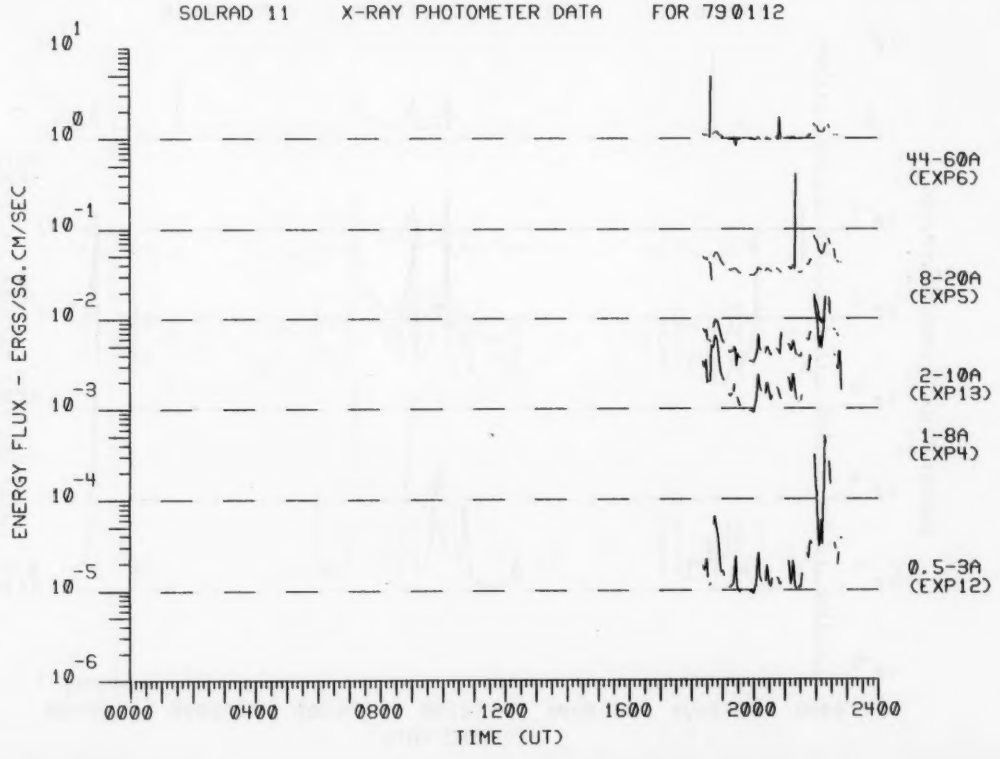
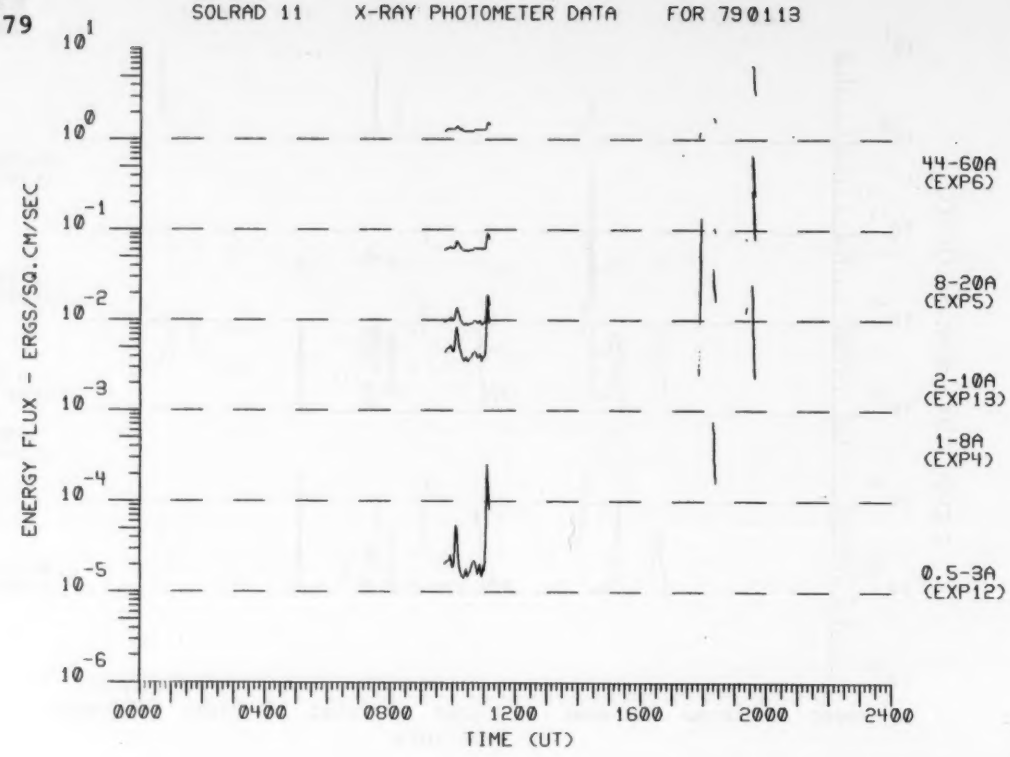
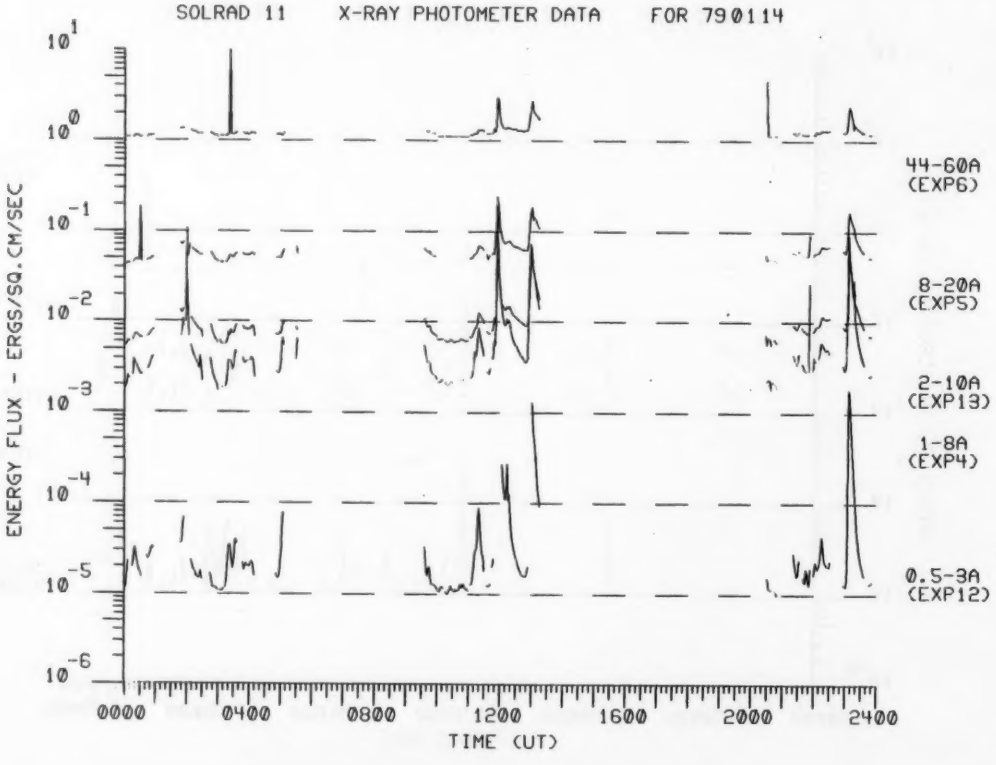
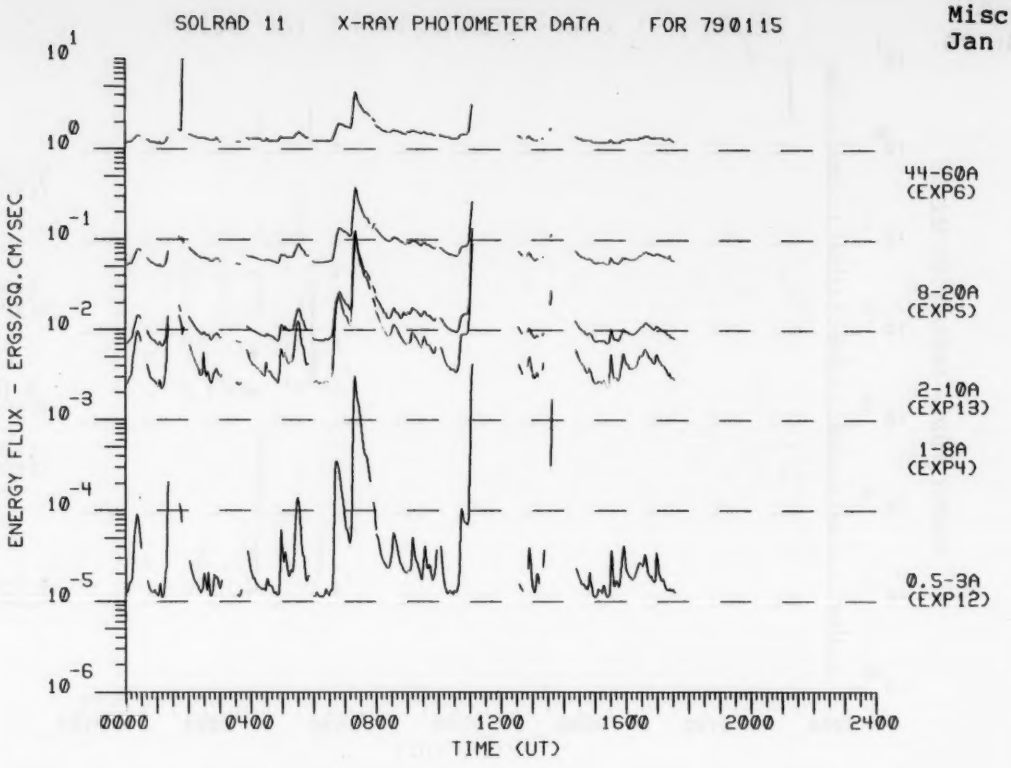
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790111
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790112
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790113
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790114
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790115
ENERGY FLUX - ERGS/SQ.CM/SEC
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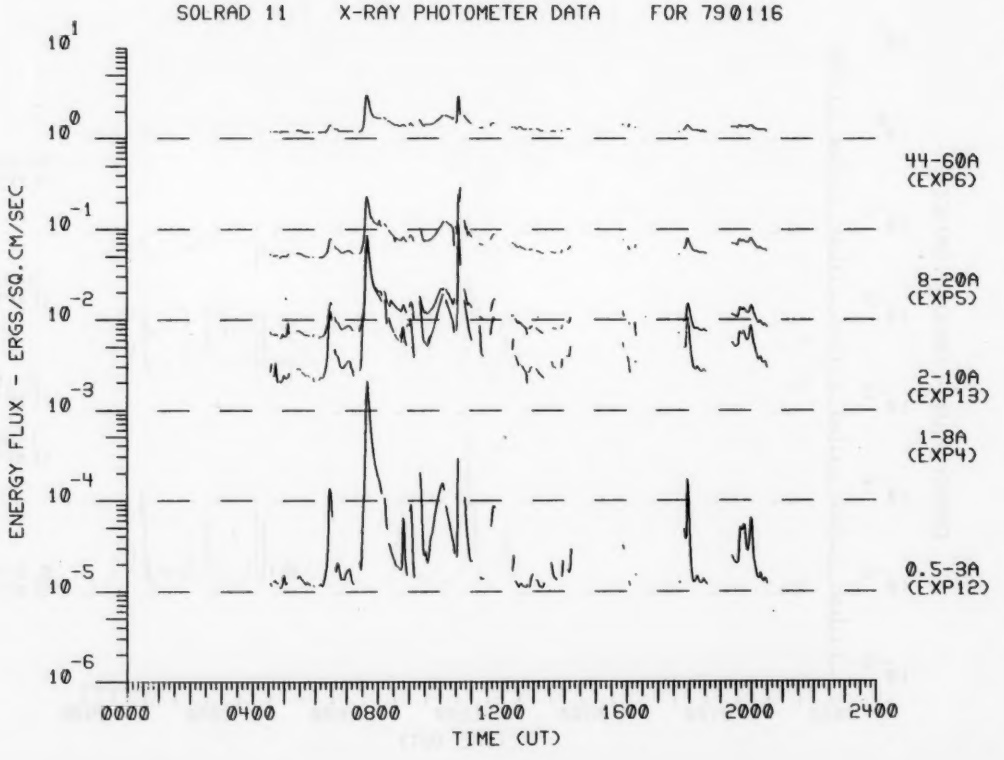
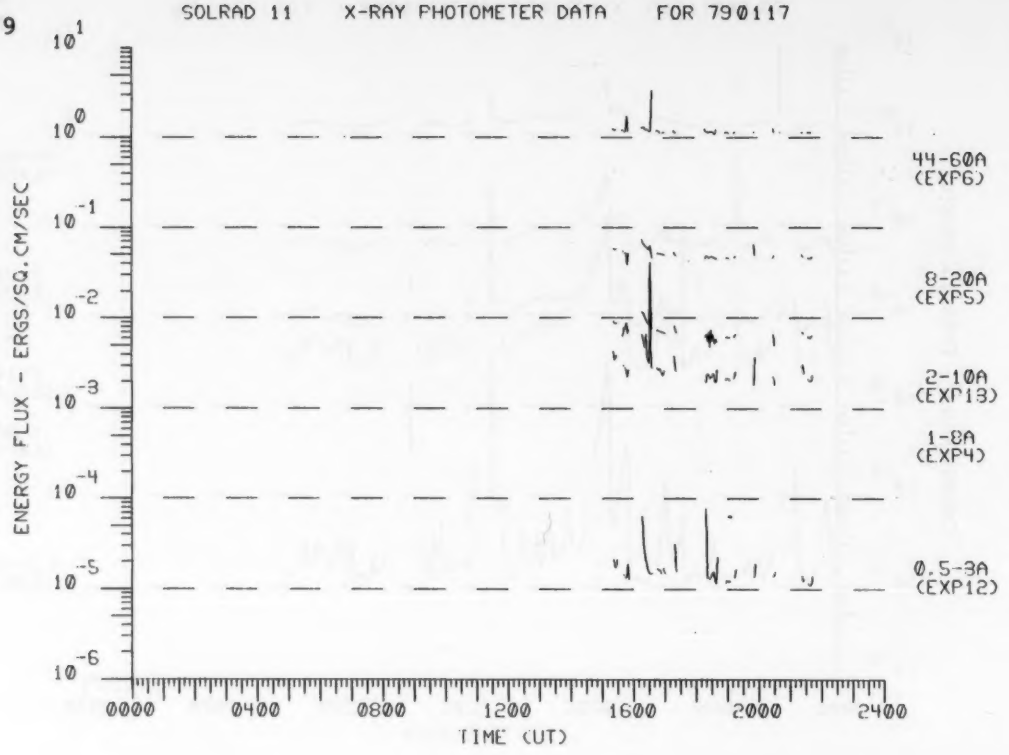
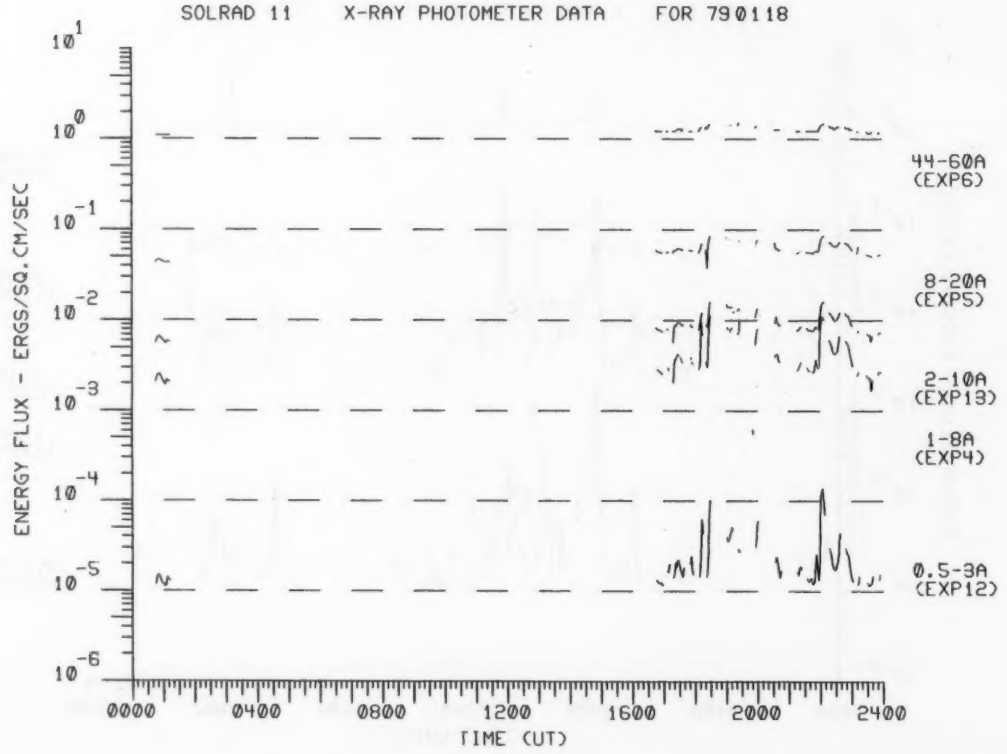
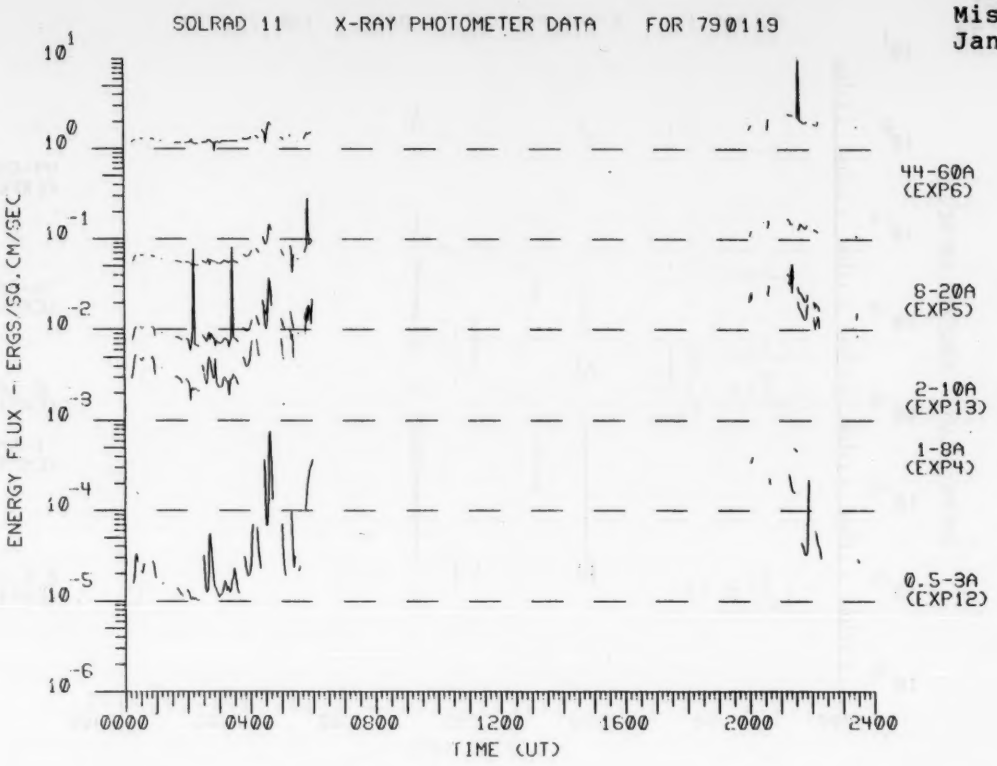
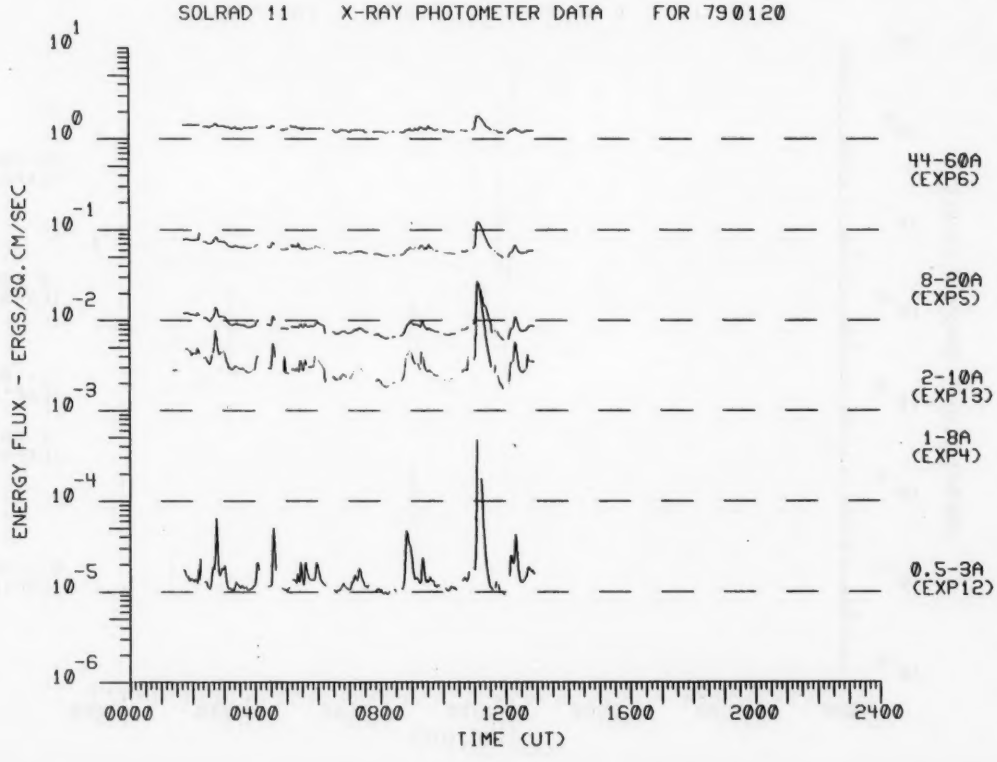
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790116
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

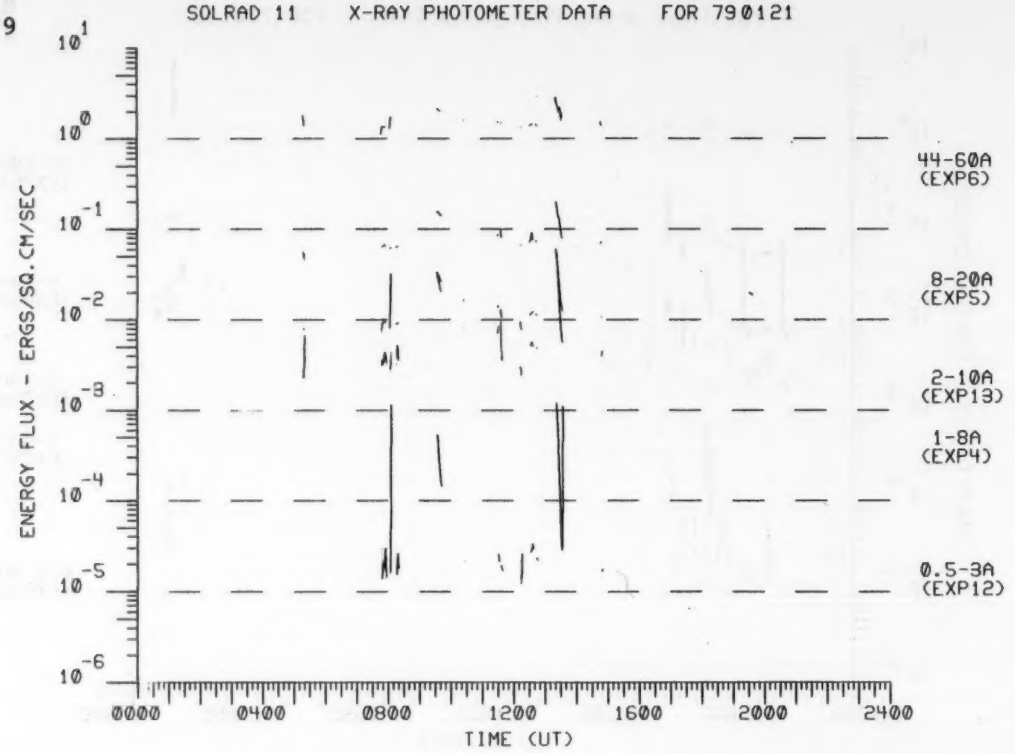

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790117
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790118
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

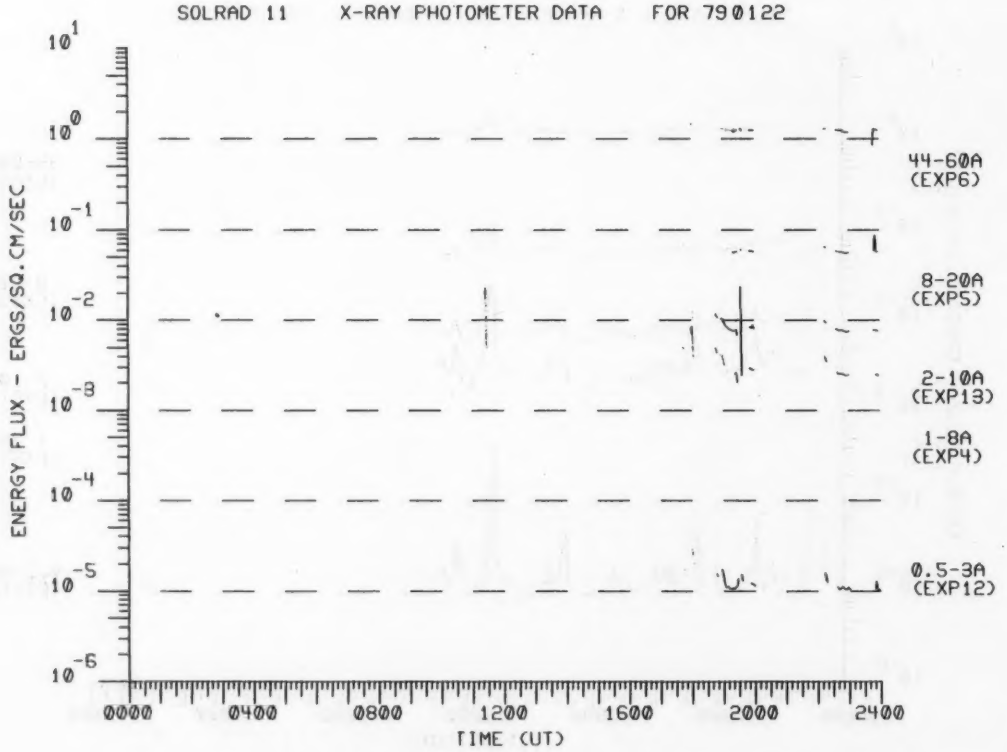

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790119
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

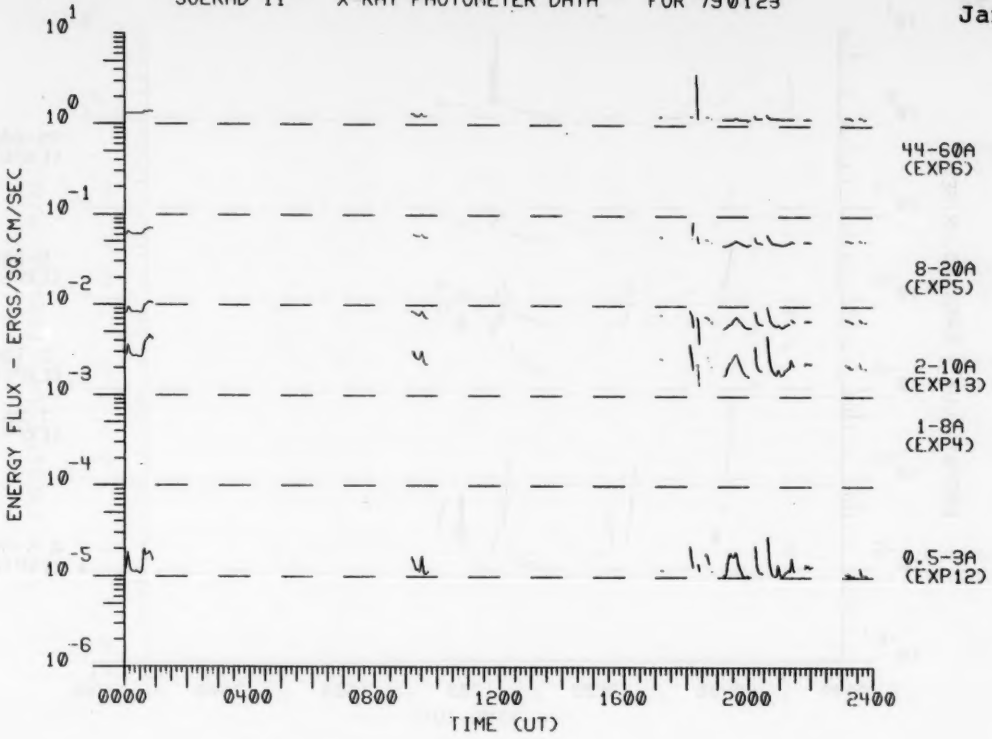

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790120
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

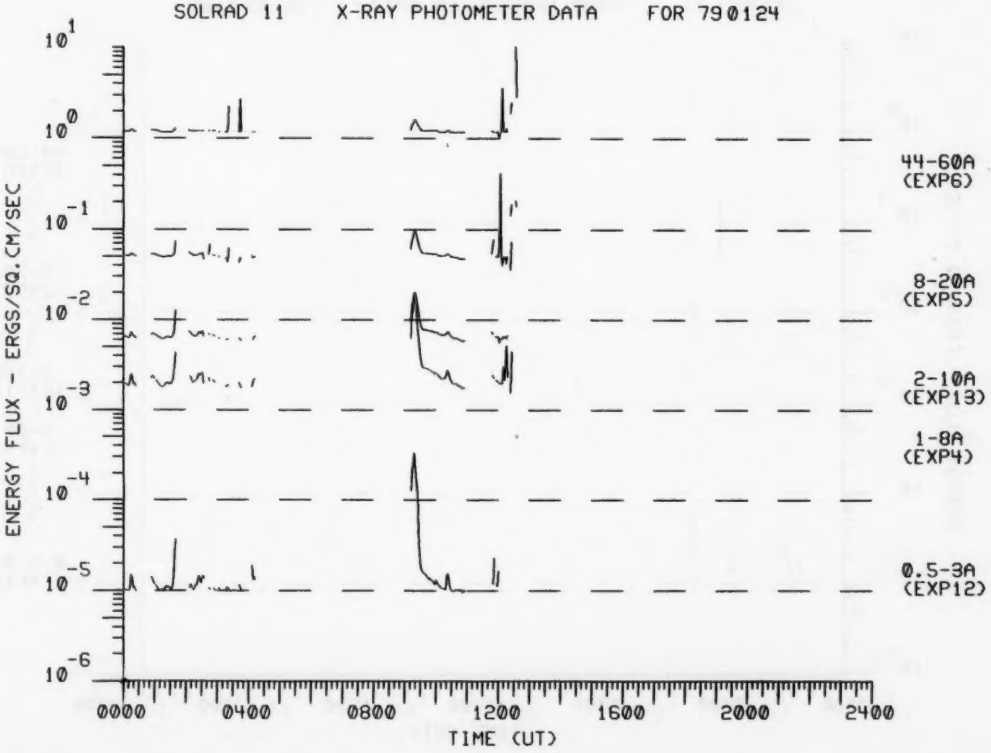
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790121

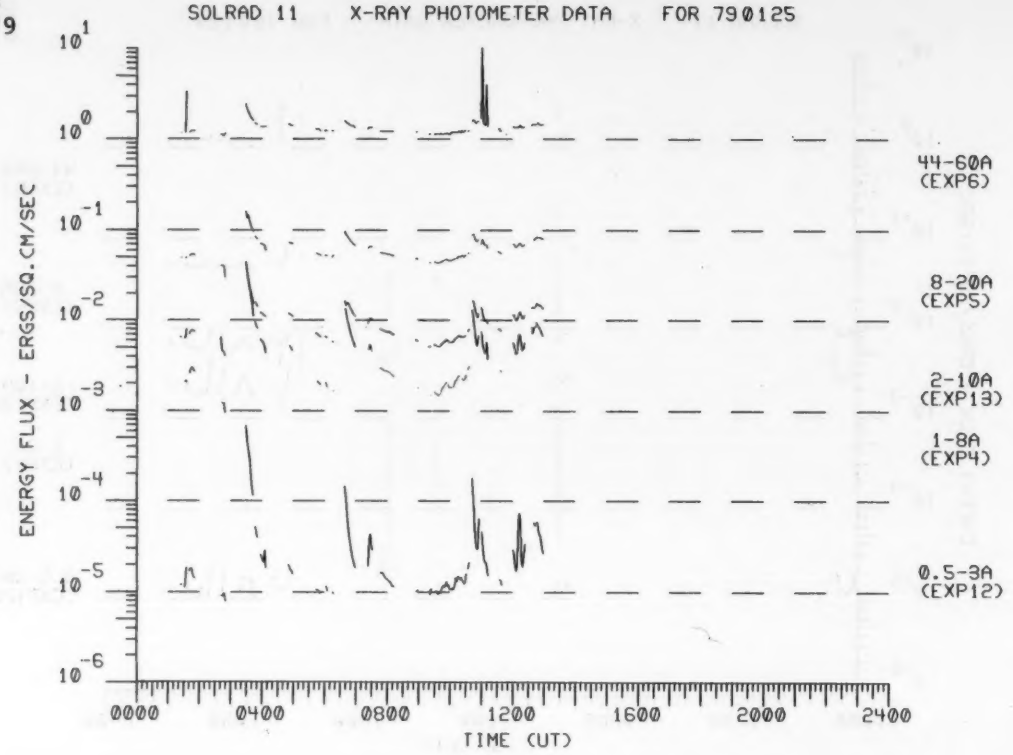


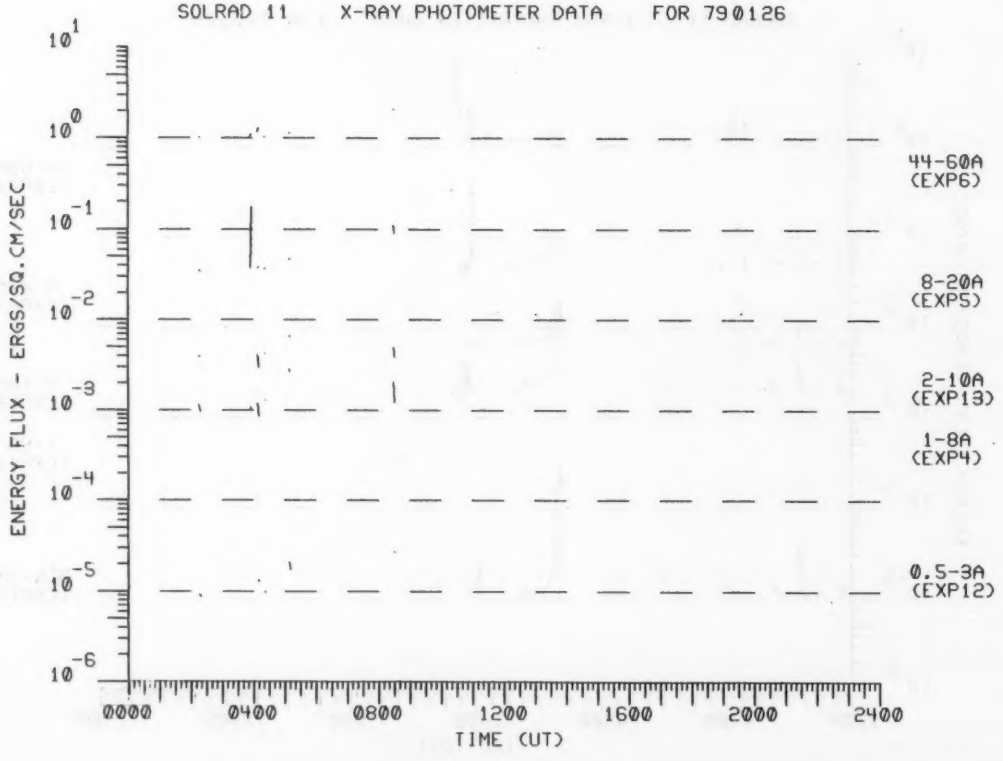
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790122



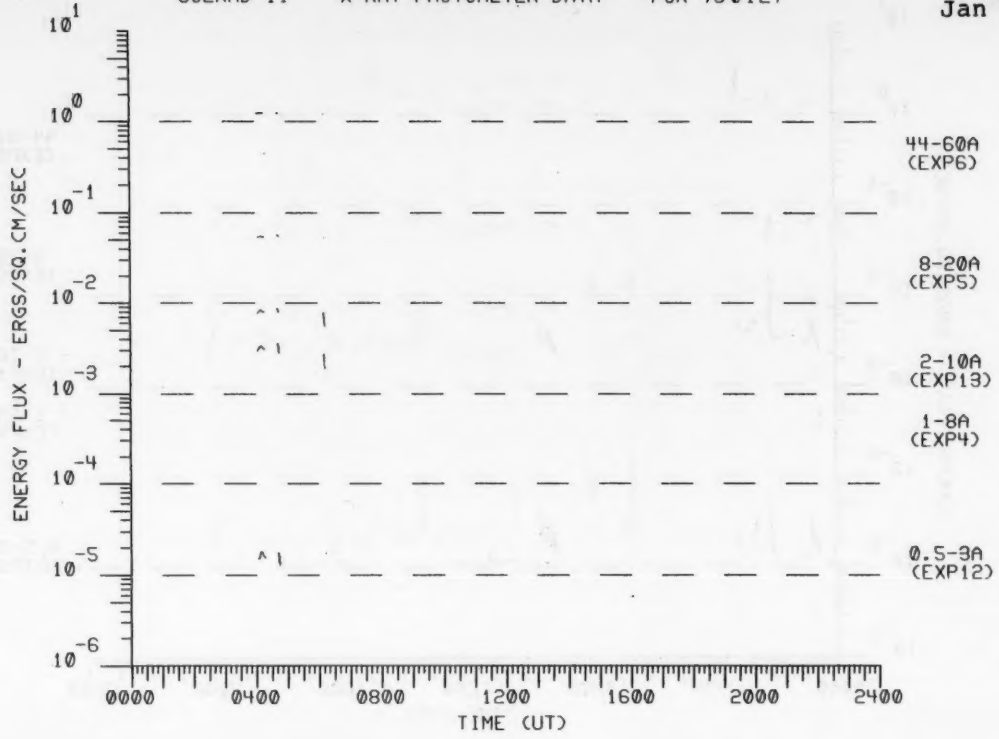

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790123
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790124
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

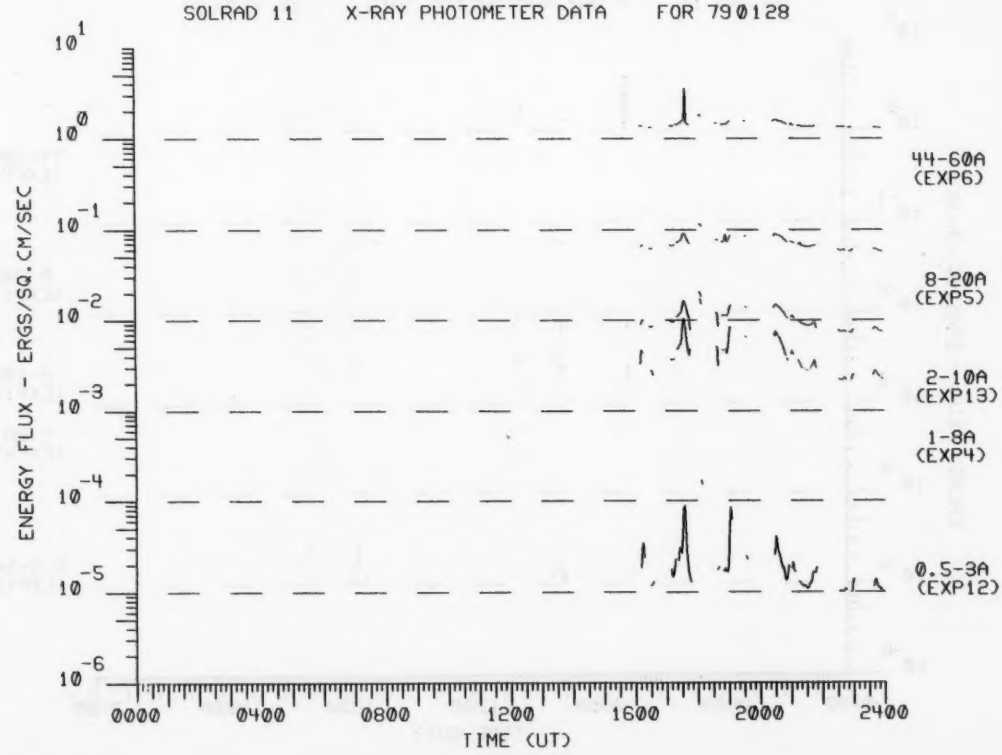

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790125
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790126
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

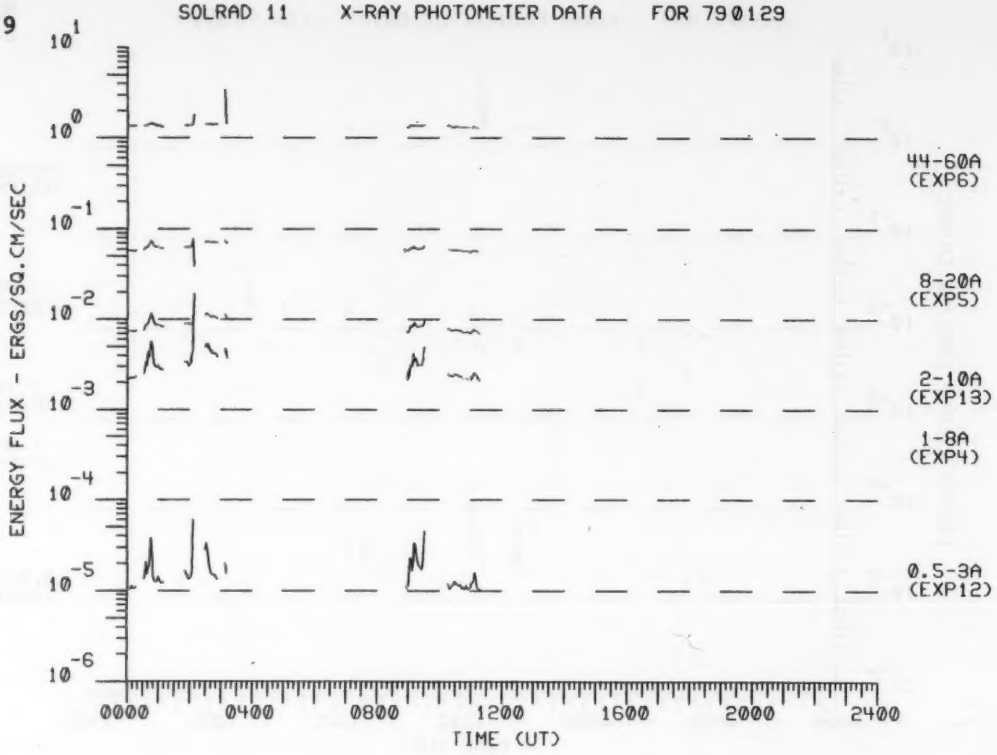
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790127



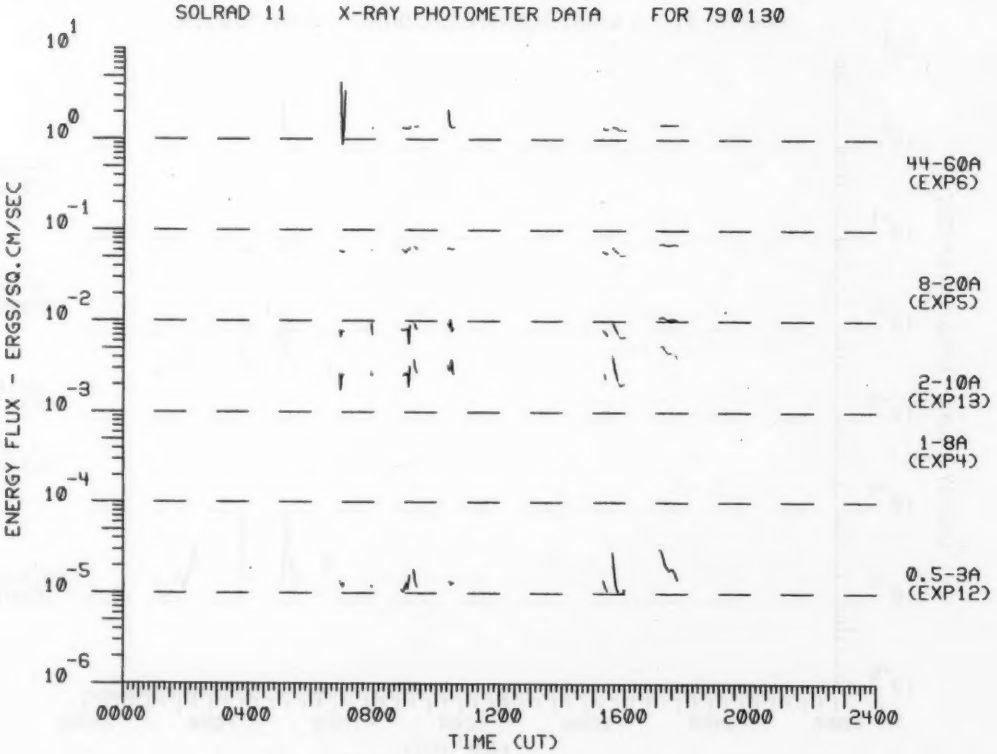
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790128

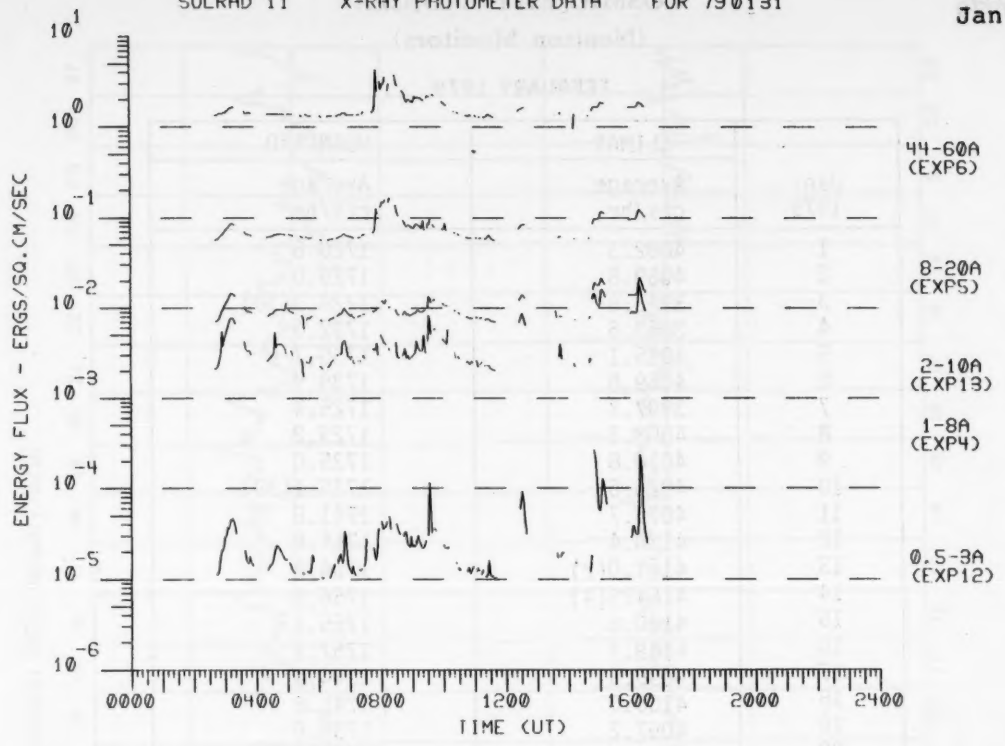


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790129



SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790130




SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790131
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A
(EXP6)
8-20A
(EXP5)
2-10A
(EXP13)
1-8A
(EXP4)
0.5-3A
(EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

COSMIC RAY INDICES

(Neutron Monitors)

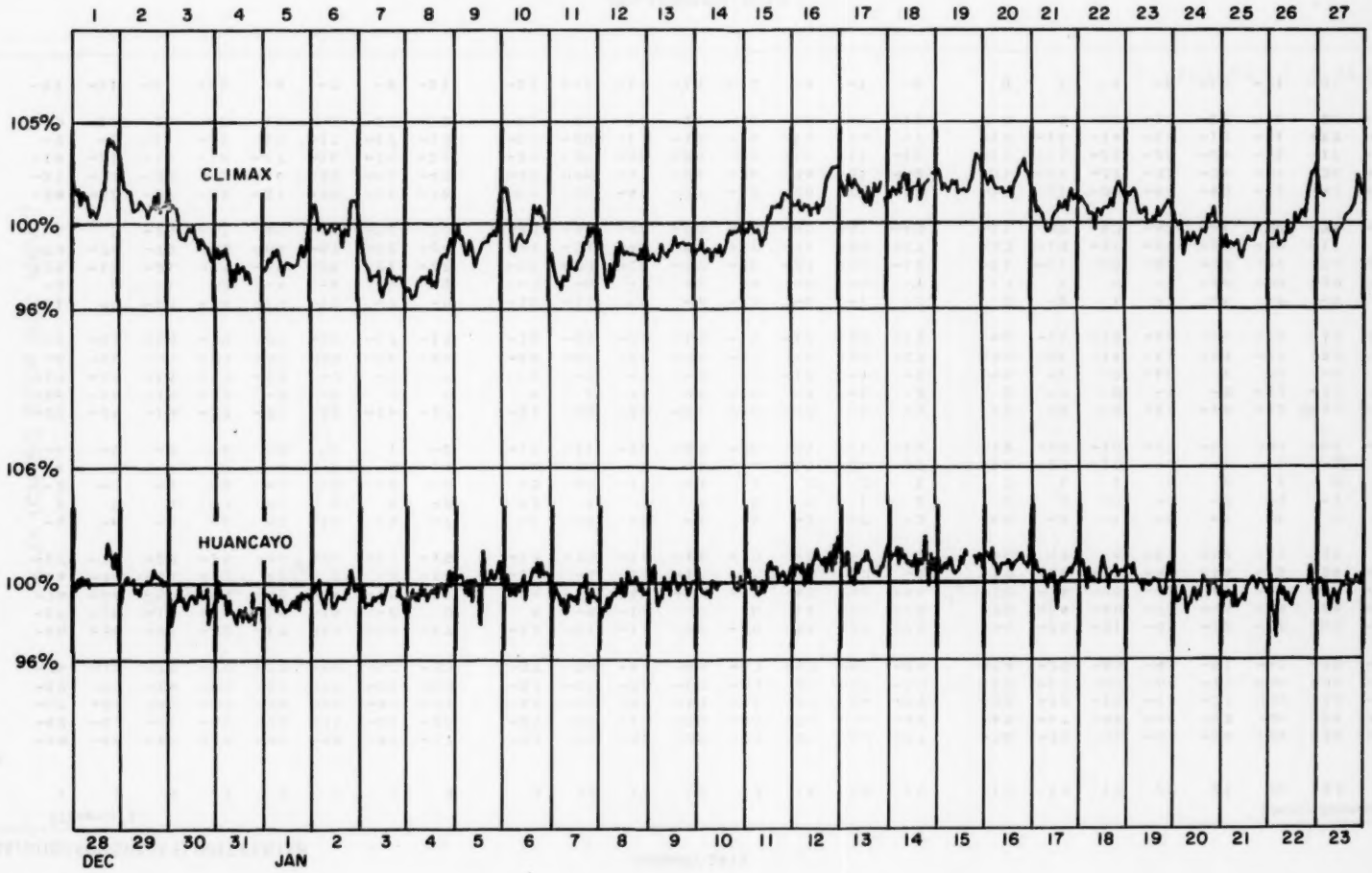
FEBRUARY 1979

Jan. 1979	CLIMAX Average cts/hr	HUANCAYO Average cts/hr
1	4002.3	1720.6
2	4069.8	1729.0
3	3973.8	1724.3(38)
4	3969.6	1732.3
5	4035.1	1739.7
6	4069.8	1739.9
7	3997.3	1725.4
8	4003.3	1729.2
9	4016.8	1735.0
10	4026.6	1735.1(38)
11	4076.7	1741.8
12	4120.4	1754.8
13	4151.0(2)	1754.4
14	4164.5(4)	1756.3
15	4150.8	1755.1
16	4148.7	1757.7
17	4095.6	1744.4
18	4105.0	1745.2
19	4097.2	1738.6
20	4056.9	1727.6
21	4033.1	1727.8
22	4078.2	1725.5
23	4094.4	1732.5
24	4088.4	1741.3
25	4090.5	1743.0(22)
26	4076.5	1737.1
27	4099.5	1737.3
28	4077.9	1736.2
29	4086.2	1735.9
30	4102.0	1742.8
31	4087.2	1742.8
MEAN	4067.2	1738.4

( ) Number of section hours of sum of both sections is less than 40 hours.
Scaling factor at Climax and Huancayo = 100.

COSMIC RAY INDICES
(Neutron Monitors)

Bartel's Rotation 1988 (December 1978-January 1979)



89
Misc
Jan 79

90
Misc
Jan 79

HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

NASA/GODDARD SPACE FLIGHT CENTER

JANUARY 1979

(Time-UT) (Units-Gammas)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-48	-46	-49	-48	-48	-48	-42	-37	-38	-39	-38	-39	-40	-39	-38	-37	-36	-35	-36	-36	-34	-29	-38	-43
2	-42	-42	-41	-40	-39	-35	-31	-26	-25	-25	-25	-29	-36	-39	-38	-42	-45	-47	-42	-44	-53	-59	-64	-70
3	-67	-63	-65	-59	-55	-49	-49	-51	-54	-60	-57	-48	-42	-44	-44	-39	-39	-40	-19	-15	-27	-35	-42	-53
4	-59	-65	-69	-68	-63	-57	-59	-60	-53	-56	-58	-60	-64	-49	-47	-50	-60	-63	-60	-60	-73	-84	-90	-91
5	-79	-75	-76	-70	-72	-69	-60	-53	-57	-54	-49	-45	-43	-43	-42	-39	-34	-39	-40	-45	-41	-40	-45	-47
6	-46	-36	-27	-20	-17	-19	-19	-17	-12	-11	-14	-22	-26	-24	-25	-28	-39	-35	-31	-33	-32	-32	-28	-18
7	-14	-16	-17	-16	-18	-14	-6	9	4	-8	-12	-5	6	-14	-26	-35	-33	-54	-60	-75	-94	-88	-84	-81
8	-74	-66	-58	-54	-55	-54	-55	-54	-54	-53	-49	-52	-47	-45	-43	-41	-38	-34	-38	-41	-41	-40	-34	-36
9	-44	-40	-36	-22	-2	2	-4	-16	-10	-6	-11	-18	-16	-17	-10	-2	-10	-15	-22	-20	-14	-16	-24	-19
10	-17	-20	-22	-25	-26	-22	-17	-15	-13	-15	-14	-13	-10	-9	-7	-6	-6	-7	-6	-10	-12	-11	-10	-7
11	-6	-6	-6	-6	-8	-10	-9	-7	-5	-5	-5	-2	-1	-3	-2	-3	-4	-2	-1	-1	-1	-1	1	2
12	2	5	0	-3	-1	3	1	-8	-3	4	7	7	5	5	1	2	2	2	-2	-3	-3	-3	-4	-8
13	-8	-5	-6	-8	-9	-9	-8	-6	-5	-5	-5	-3	1	3	3	1	0	1	1	0	2	2	0	1
14	4	7	7	7	4	-1	-8	-14	-14	-10	-9	-9	-14	-21	-26	-25	-16	-12	-10	-8	-7	-6	-3	-4
15	-6	-9	-9	-6	-5	-1	1	-2	-10	-11	-12	-23	-28	-21	-14	-15	-12	-12	-10	-17	-22	-30	-29	-27
16	-28	-24	-19	-20	-24	-22	-18	-17	-21	-25	-23	-21	-16	-13	-9	-9	-9	-8	-8	-13	-16	-12	-10	-17
17	-16	-14	-12	-10	-5	-2	2	6	4	2	-1	-7	-10	-5	-2	-2	0	-7	-8	-4	-8	-12	-16	-16
18	-19	-19	-15	-13	-14	-9	-9	-7	-6	-5	-4	-8	-7	-12	-4	-5	-4	-1	-3	-12	1	-9	-6	-5
19	-6	-18	-30	-33	-34	-38	-26	-25	-26	-26	-27	-32	-23	-18	-19	-23	-25	-21	-14	-11	-14	-17	-23	-23
20	-25	-21	-18	-19	-20	-22	-17	-14	-18	-20	-20	-19	-14	-13	-15	-15	-6	-11	-15	-16	-17	-15	-13	-12
21	-11	-9	-10	-14	-15	-12	-7	-8	-10	-11	-4	-9	-13	-6	-7	-3	2	-2	1	-3	-4	-7	-9	-6
22	-5	0	-1	-2	-4	-4	-4	-2	-3	-6	-8	-5	-4	-8	-8	-3	-3	1	6	-2	-18	-29	-29	-30
23	-25	-18	-21	-25	-25	-22	-21	-22	-21	-23	-22	-19	-26	-28	-40	-48	-51	-61	-59	-52	-57	-77	-76	-70
24	-79	-74	-70	-63	-64	-67	-65	-64	-61	-51	-48	-45	-37	-31	-28	-27	-23	-18	-21	-14	-22	-22	-11	-7
25	-6	3	-15	-41	-45	-40	-32	-38	-45	-41	-45	-58	-48	-45	-43	-40	-41	-37	-43	-42	-41	-39	-36	-34
26	-38	-40	-34	-34	-37	-39	-38	-35	-40	-39	-41	-37	-29	-26	-27	-25	-18	-21	-39	-48	-40	-48	-48	-39
27	-33	-31	-38	-45	-44	-43	-44	-43	-45	-46	-42	-39	-36	-34	-31	-32	-31	-38	-37	-32	-37	-37	-26	-24
28	-28	-21	-19	-16	-17	-15	-19	-22	-25	-30	-26	-29	-24	-16	-14	-16	-14	-14	-21	-25	-24	-24	-17	-13
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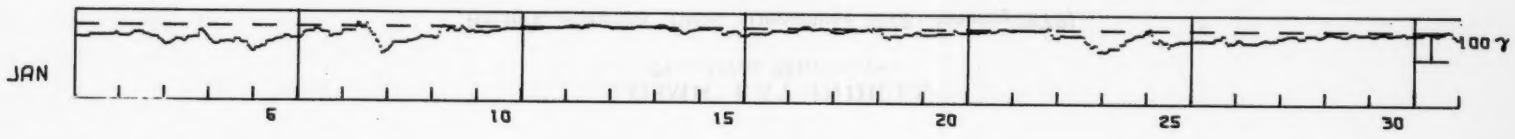
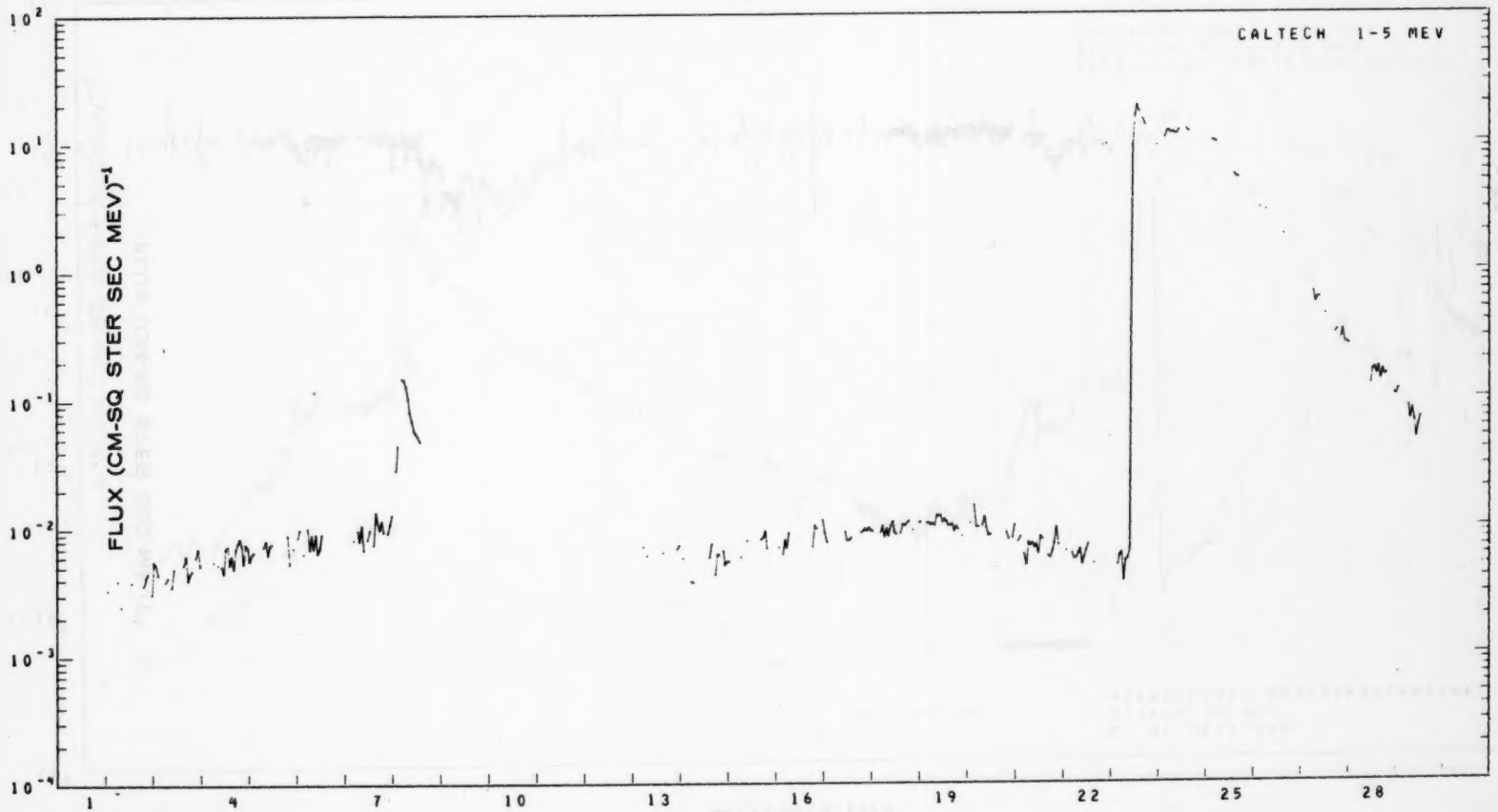


IMP 7 AND 8 ELECTRONS

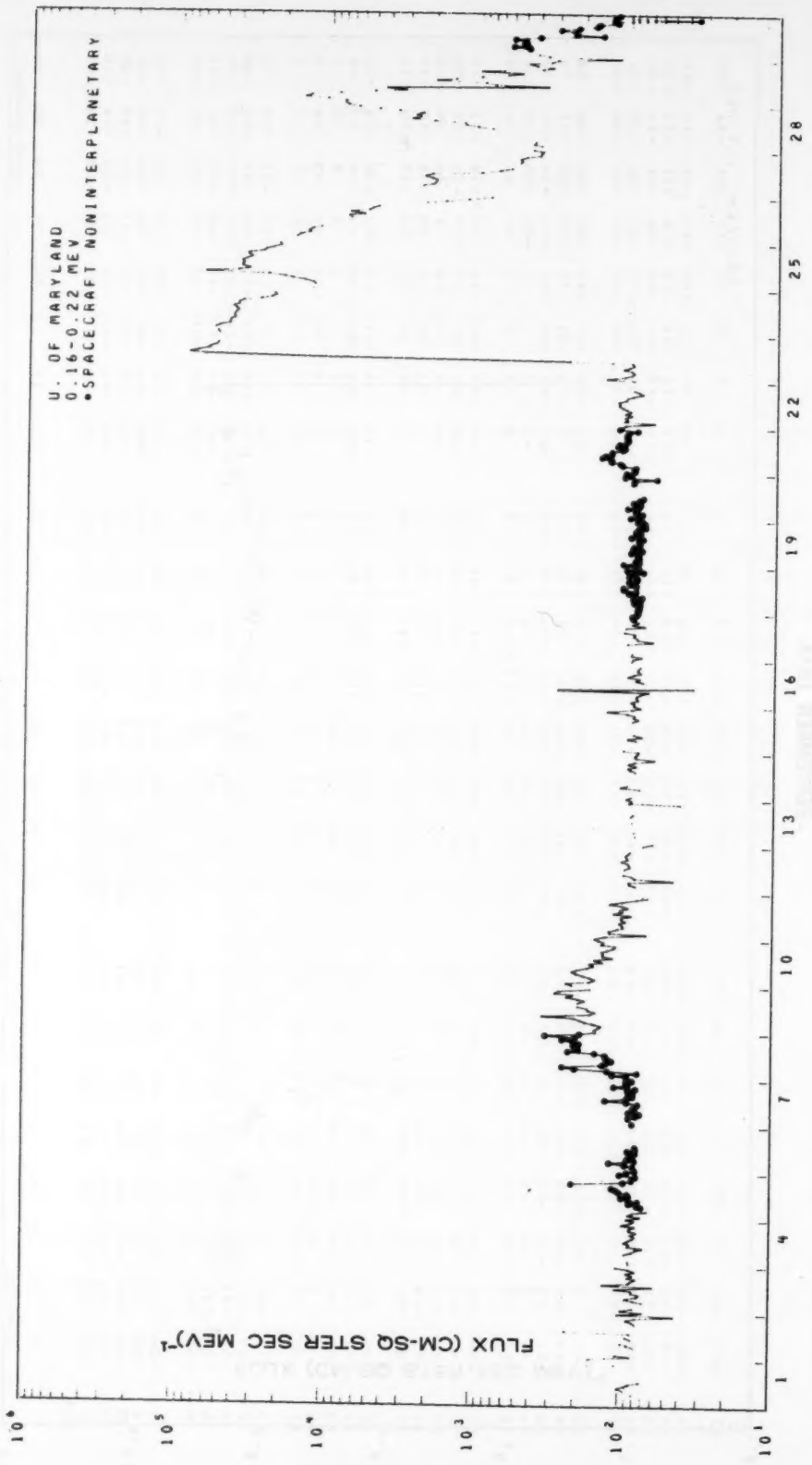
SEPTEMBER 1978



91
Misc
Sep 78

IMP 7 AND 8 LOW ENERGY PROTONS

SEPTEMBER 1978



IMP 7 AND 8 INTERMEDIATE ENERGY PROTONS

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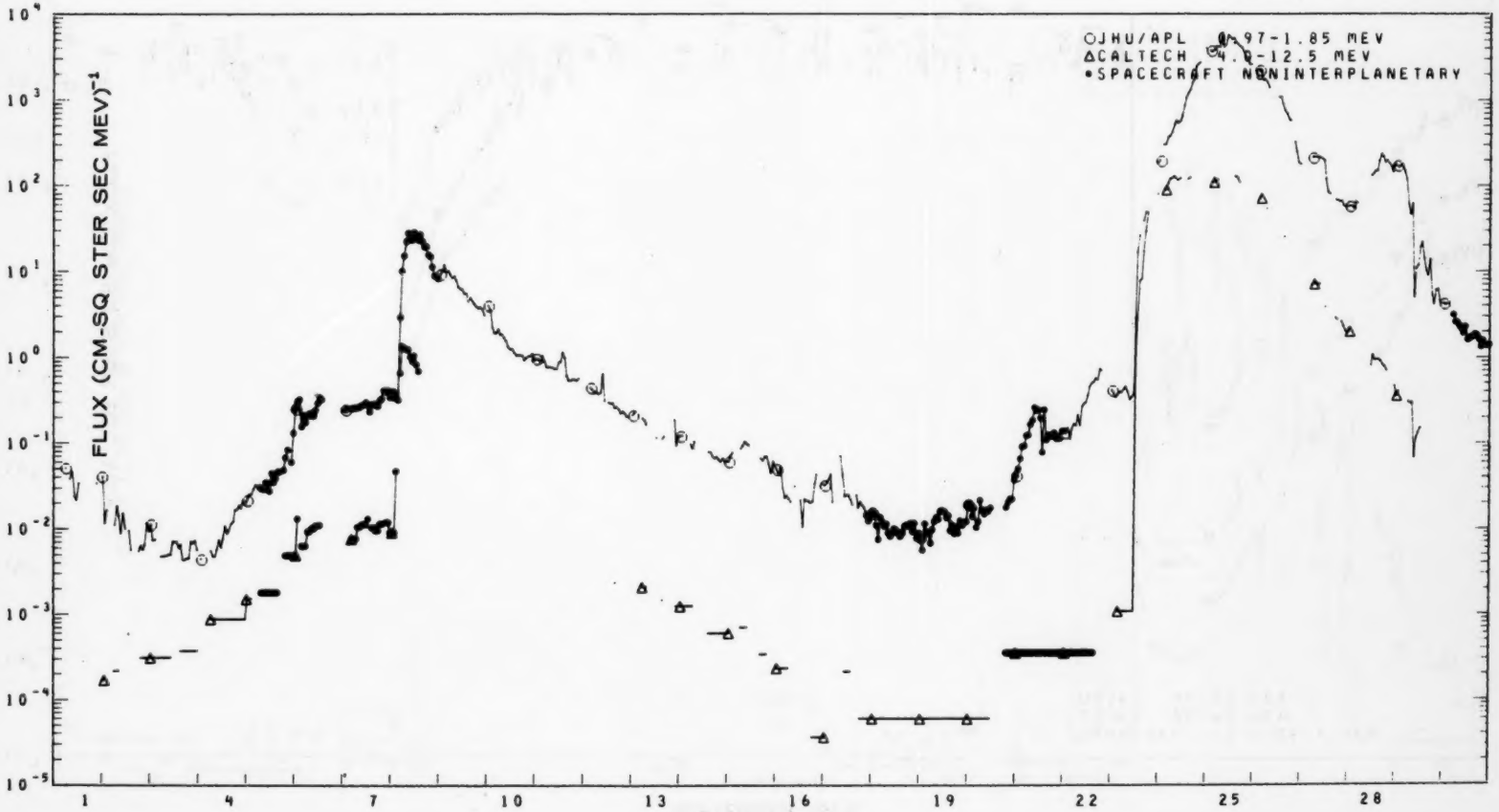

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Misc
Sep 78

IMP 7 AND 8 HIGH ENERGY PROTONS

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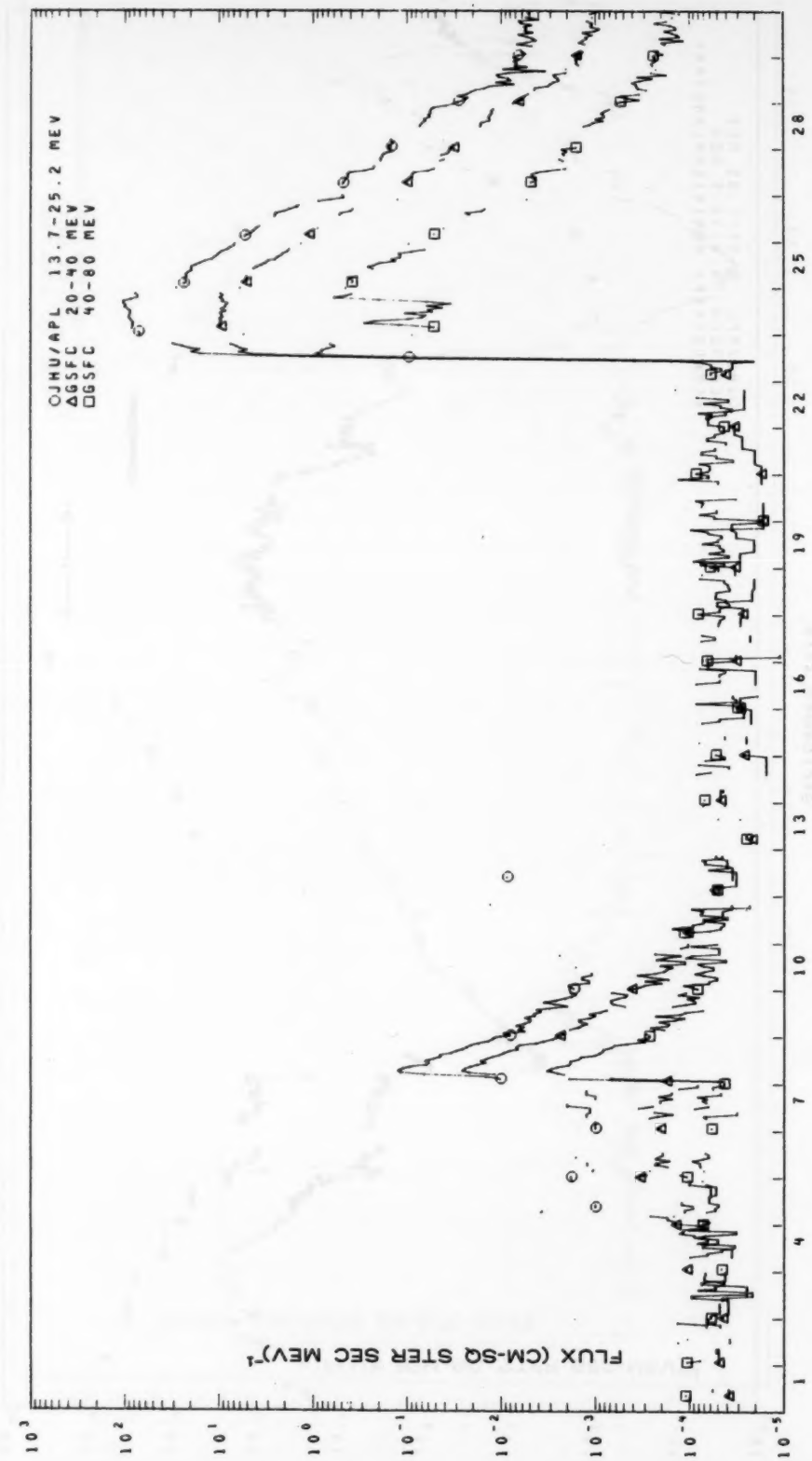
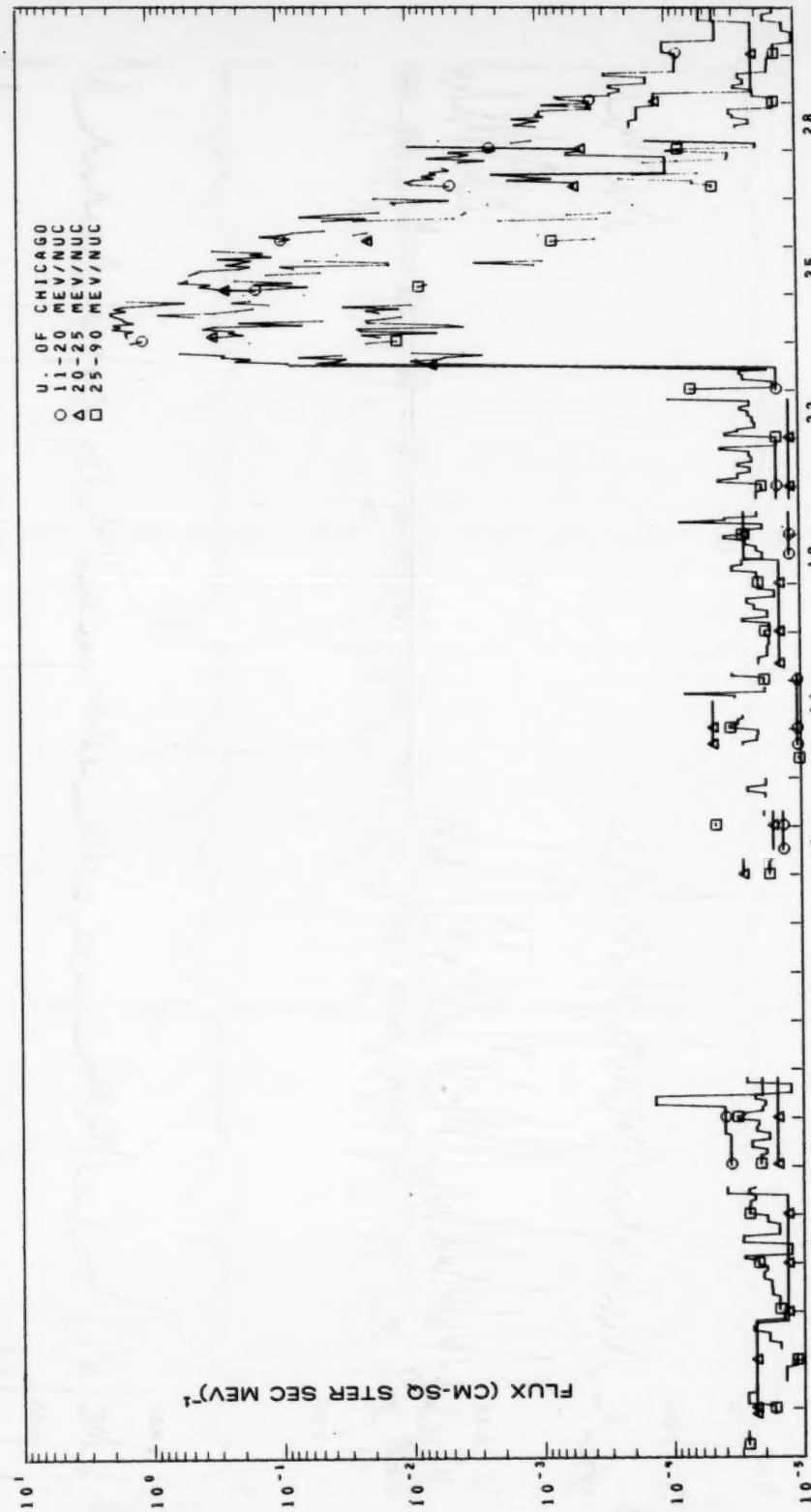
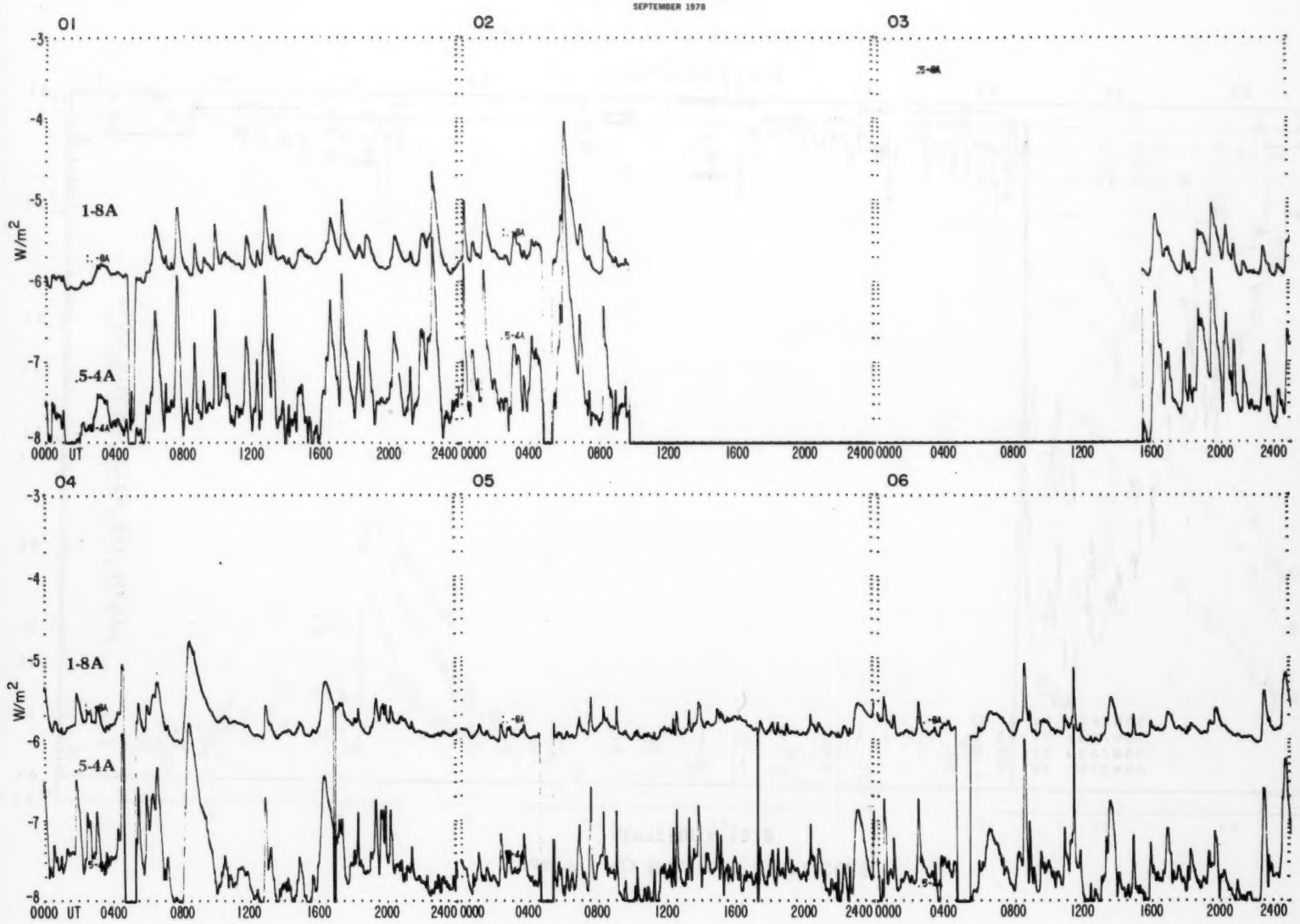


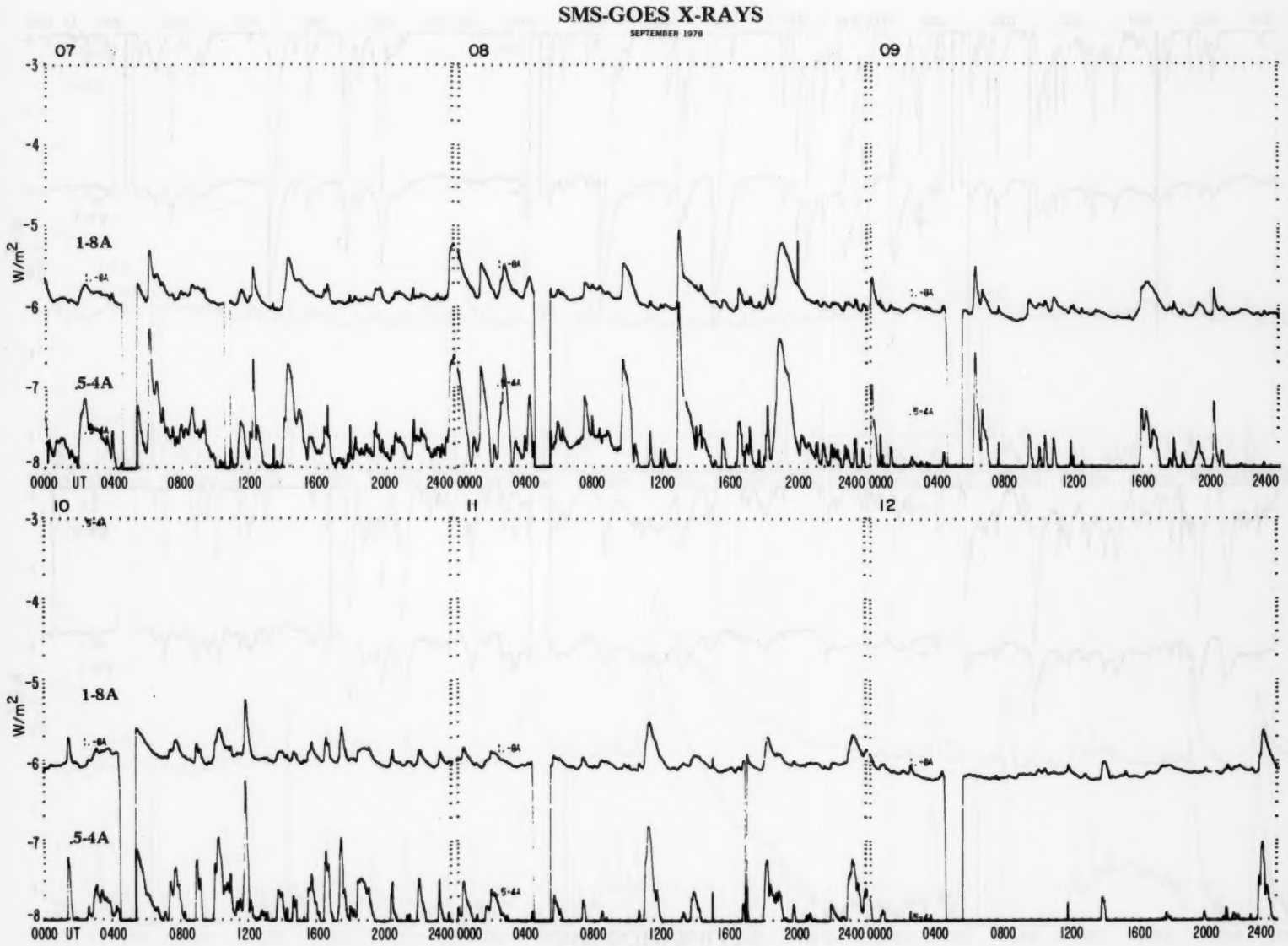

IMP 7 AND 8 ALPHA PARTICLES
SEPTEMBER 1978
U. OF CHICAGO
○ 11-20 MEV/NUC
△ 20-25 MEV/NUC
□ 25-90 MEV/NUC
FLUX (CM-SQ STER SEC MEV)⁻¹
10¹
10⁰
10⁻¹
10⁻²
10⁻³
10⁻⁴
10⁻⁵
1
4
7
10
13
16
19
22
25
28

96
Misc
Sep 78

SMS-GOES X-RAYS

SEPTEMBER 1978




SMS-GOES X-RAYS
SEPTEMBER 1978
07
08
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1-8A
.5-4A
W/m2
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-7
-8
0000 UT 0400 0800 1200 1600 2000 2400 0000 0400 0800 1200 1600 2000 2400 0000 0400 0800 1200 1600 2000 2400

98
Misc
Sep 78

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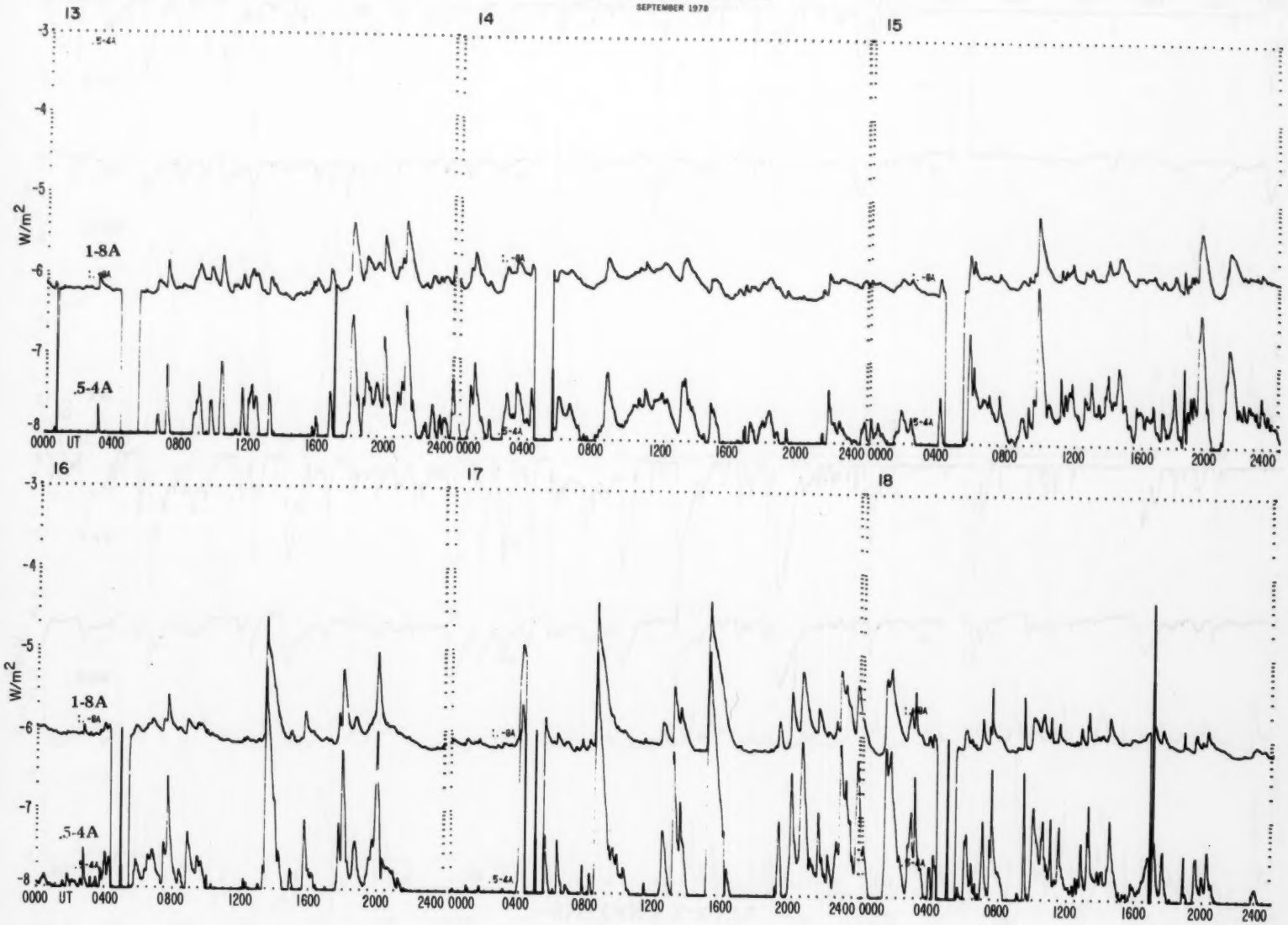
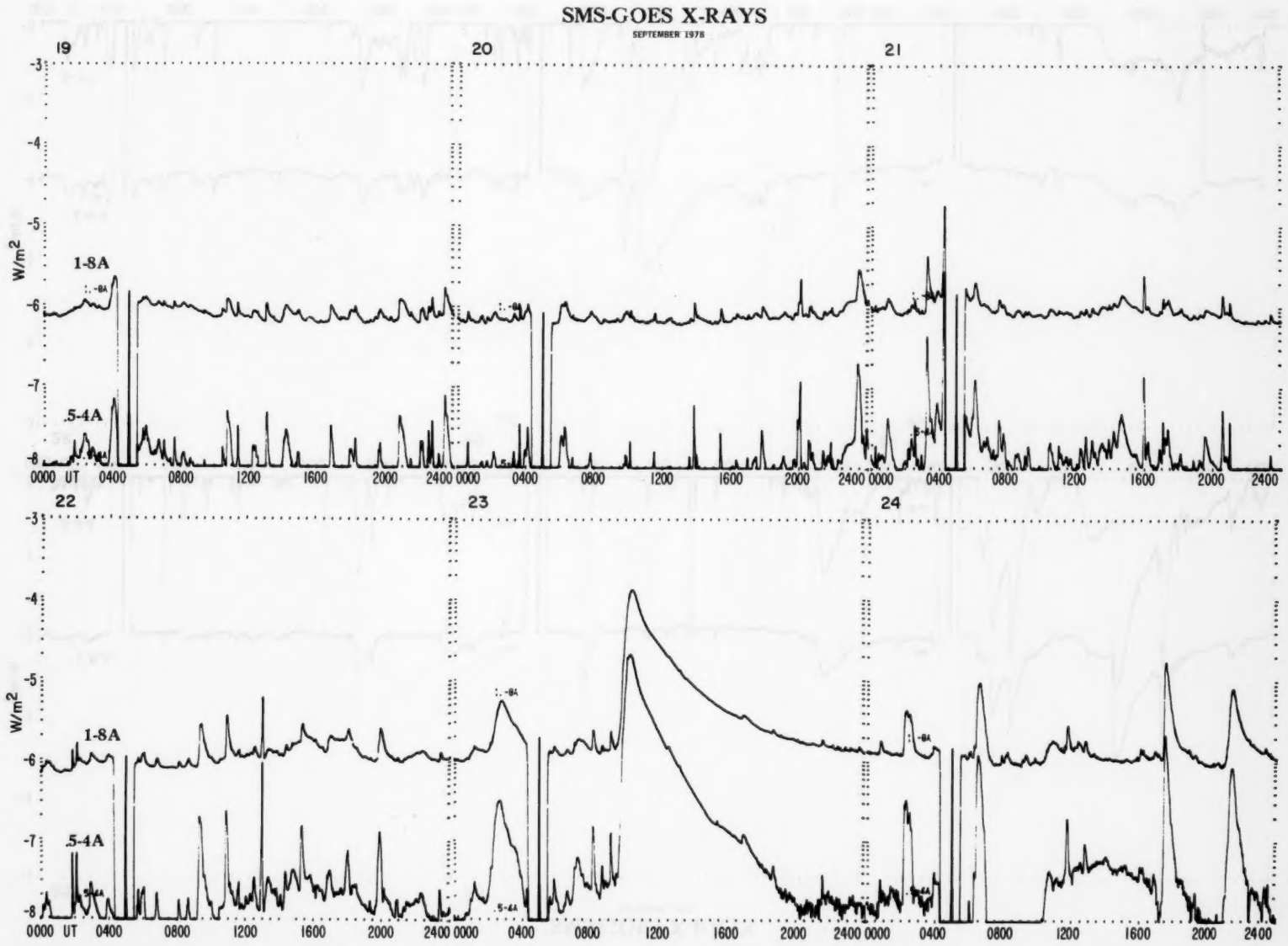
SEPTEMBER 1978




SMS-GOES X-RAYS
SEPTEMBER 1978
19
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W/m2
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.5-4A
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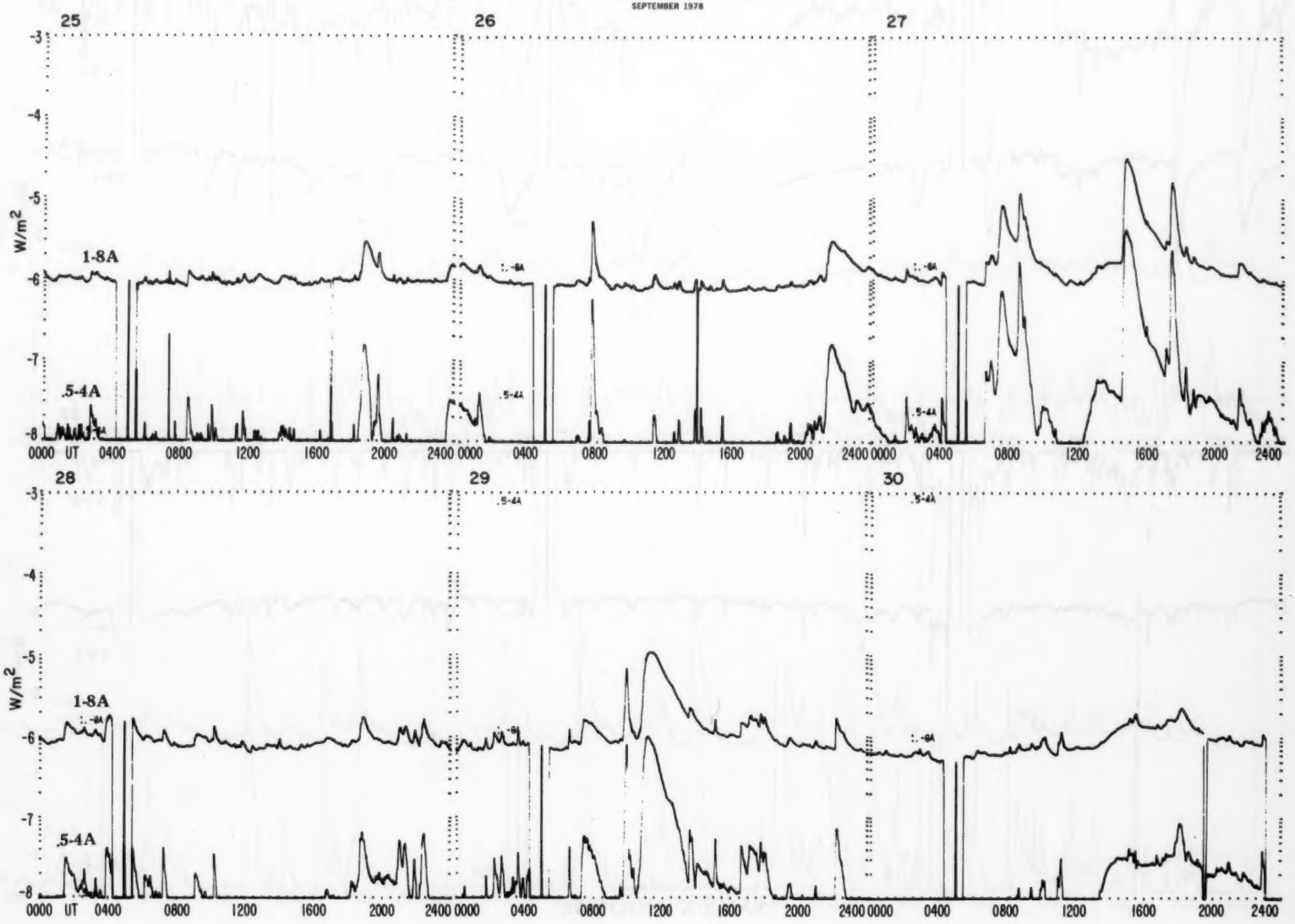
-4
-5
-6
-7
-8
0000 UT
0400
0800
1200
1600
2000
2400 0000

100
Misc
Sep 78

SMS-GOES X-RAYS

SEPTEMBER 1978



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